FEBRUARY 1949

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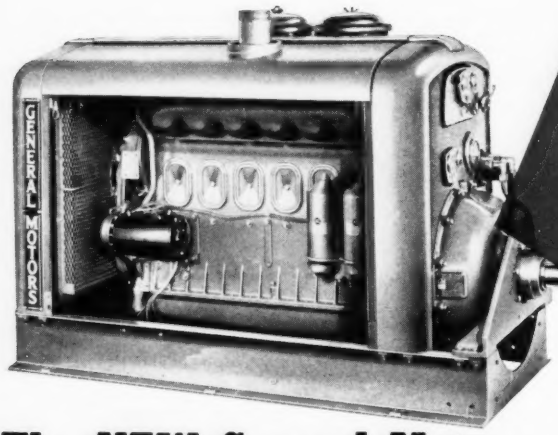
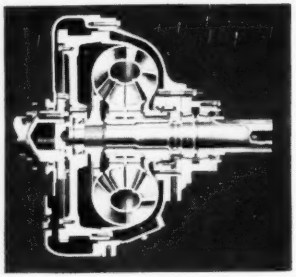


A Combination Torque Converter and Fluid Coupling *Integral with the Engine*

General Motors 71 Diesels equipped with the new GM Torque Converter take up no more space or weight than the same engines with conventional friction clutch and power take-off. Available in 3-, 4-, and 6-cylinder single engine units. Twin 4 and Twin 6 models having engine ratings from 75 to 300 H.P.

The NEW General Motors DIESEL ENGINE-TORQUE CONVERTER UNIT

HERE is a complete, integrated Diesel engine-torque converter unit that combines the inherent efficiency of the GM 2-cycle Diesel engine with the features and advantages of *both* torque converter and fluid coupling. It provides *torque multiplication up to 4 to 1* for starting variable heavy loads. It also provides *highly efficient transmission of power* during light load periods by *automatically shifting to fluid coupling* in the upper speed range.



In the new GM Torque Converter, oil does the work. Automatic transition from torque multiplication of 4:1 at stall to 1:1 in upper speed range.

A smooth, uninterrupted flow of power, delivered through a liquid, *prevents engine stalling* under any load and *protects both engine and driven machinery from sudden shocks.*

One Manufacturer—One Responsibility

Up to now most engines and hydraulic drives have been separate units. The result—compromise designs and divided responsibility. Now General Motors offers a new torque converter specifically designed and manufactured as an integral part of the General Motors Series 71 Diesel engine. It is a self-contained unit built by one manufacturer providing a long needed saving in space and weight as well as certain desirable operating characteristics not available before.

This new power unit will get the most work done in the least time because the engine operates in its most efficient speed range at all times—delivering maximum engine horsepower regardless of the speed of the load. *Maximum torque to start heavy loads PLUS maximum horsepower to keep the load moving.*

Everyone with a hard job to do in the oil fields, in construction, in mining or in logging should have all the facts about this compact, flexible GM Diesel Engine Torque Converter unit. *Write today for a complete description.*

DETROIT DIESEL ENGINE DIVISION

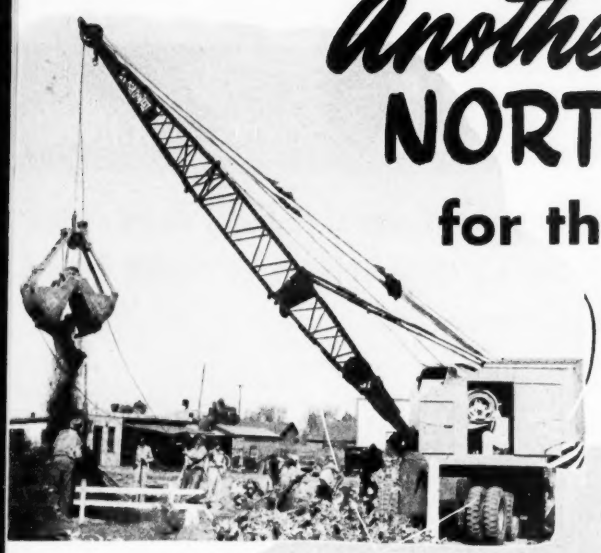
SINGLE ENGINES . Up to 200 H.P. **DETROIT 28, MICHIGAN** MULTIPLE UNITS . . Up to 800 H.P.

GENERAL MOTORS

DIESEL BRAWN WITHOUT THE BULK

GM GENERAL MOTORS DIESEL POWER

Another NORTHWEST for the heart of a FRAZIER-DAVIS JOB!



This makes 21 Northwests for Frazier-Davis Construction Co. St. Louis, Mo.

Truck Crane jobs—in fact all Crane, Shovel, Dragline or Pullshovel jobs are *Key Spots*. Digging and material movement are the heart of the job, the place where output and profits begin.

This Frazier-Davis job was a fast one. A line of pipe had to be laid across a street that could be blocked the minimum of time. With the aid of a Northwest Truck Crane the job was done in four hours.

Northwest advantages that mean smooth and low-cost operation, the "Feather-Touch" Clutch Control, Uniform Pressure Swing Clutches, the Cushion Clutch, Northwest Boom Hoist and other Northwest features make jobs like this easier. These features combined with Northwest dependability are the reasons why one out of every three Northwests is a repeat order in the hands of outfits like Frazier-Davis. Successful contractors keep successful with dependable equipment.

You can't afford to have anything but the best in the heart of your job. Plan now to have a Northwest. Let us send you details and tell you how.

NORTHWEST ENGINEERING COMPANY
1502 Field Bldg., 135 South LaSalle Street
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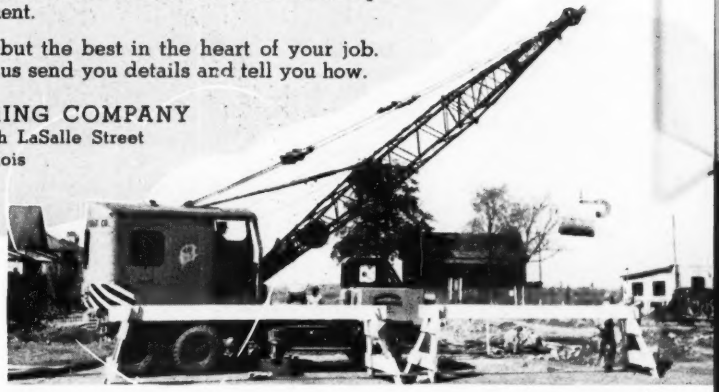

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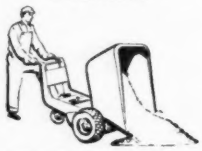
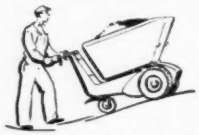
Bucket holds 10 cubic feet . . . 18 with sideboards

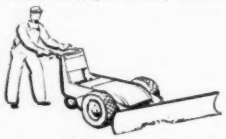


Mechanically dumped . . . operates by foot pedal

9-square-foot steel platform takes half-ton loads



Climbs 20% grades fully loaded



50-inch steel blade makes Prime Mover an efficient snow plow

FEATURES:

- gear driven . . . no belts or chains
- fully enclosed engine protected against dirt and moisture
- clutch, engine, transmission all run in oil
- switch from bucket to platform without tools . . . in less than a minute
- turns in its own length (63½"); width 31½"
- 3-gallon tankful of fuel gives 8 hours continuous service

A PRODUCT OF

BELL *Aircraft* CORPORATION

The BELL *Prime Mover*

- eliminated cars, track, and skip hoist on tunnel job at Wright Field

VEST & BARTELL, Cincinnati contractors have discovered that Prime Movers not only save time and manpower, but frequently substitute for costlier equipment. This was clearly demonstrated on a 4′x 5′ rock tunnel beneath the gun range at Wright Field. Here Prime Movers functioned right in the tunnel itself . . . hauling broken rock out of the tunnel and up a steep ramp to the surface, and from there to a disposal dump several hundred feet away.

● Combining the features of a giant motorized wheelbarrow, a 9- or 14-square-foot platform truck, and a powerful snow plow, the Bell Prime Mover is an ingenious answer to the problem of cutting costs and reducing labor on construction projects.

With Prime Movers on the job . . . pouring concrete and doubling the productive capacity of wheelbarrow or "buggy" gangs . . . work can be expedited on almost any job. You can take some of the guesswork out of figuring labor costs, for Prime Mover savings provide a cushion against increased labor rates.

All of these facts can be proved conclusively by an on-the-job demonstration. *It took only half an hour at one of these demonstrations for a contractor to sideline six concrete buggies in favor of two Prime Movers on a 160-yard pour. Two men finished the job in 7½ hours.*

If you would like to see a Prime Mover . . . or a "fleet" of them in action, we'll gladly make the arrangements. For more information, please attach this coupon to your letterhead and mail it to us at once.

SEND COUPON NOW

Bell Aircraft Corporation
P. O. Box 1CN2, Buffalo 5, N. Y.

Please send me facts on the Bell Prime Mover. Who is the nearest distributor?

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Contents

Construction

VOL. 16 NO. 2

FEBRUARY 1949

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Record Road Program Seen in Louisiana

HIGHWAY construction, maintenance and operation in Louisiana this year will call for a record expenditure, it is announced by R. B. Richardson, director of the State Department of Highways, who said the $43,000,000 budget is about seven million dollars more than was spent last year.

"The final amount we can wisely spend will depend upon prices and materials, the highway director stated, and with the easing of general conditions we hope to do even better than $43,000,000." More than $24,000,000 will be spent for new construction, betterments and replacements. Maintenance will require about $14,000,000. The $5,000,000 balance will go for state aid to parishes, replacement of worn-out equipment and engineering and statutory charges.

"We expect to have a few more contractors available for work on our highways, and they will be better equipped in 1949 than they were last year," Mr. Richardson predicted. "Perhaps we won't be delayed as much by the cement shortage this year, but I think the steel shortage will continue, forcing us to build some timber bridges where we would like to build steel - and - concrete structures." Prices, he said, "look like they will be about the same" as last year in the highway construction field.

Richardson said the road program for 1949 will include the completion of some gaps in the major highway system, including bridges and overpasses, blacktopping of a large mileage of gravel roads, and construction of farm-to-market routes.

Funds to be used by the Highway department for this overall program, Mr. Richardson pointed out, include an estimated $9,000,000 in federal funds, earned from regular federal aid allotments. Additional state funds will come from automobile licenses, gasoline taxes, bonds and a special legislative appropriation of $10,000,000.

Highway improvement contracts awarded or advertised for bids during 1948 amounted to $24,000,000 or equal to the ten-year record set in 1947.

More than twice as much work actually was placed under construction. Actual expenditures for construction and maintenance during the year totalled $33,617,000, compared with $23,056,000 during 1947, Richardson's informal year-end report showed.

"This $10,000,000 increase in money actually paid out represents a large amount of work," the director said. "Last year we placed under construction a great many contracts that were awarded the year before, but were held up for lack of men, materials and machinery."

In the field of new construction, Richardson said, betterments and replacements amounted to $19,682,000. In 1947, only $10,474,000 was expended for the same class of work. Routine and extra-

(Continued on page 60)

How the proper application

# of wire rope

-may save you money

● Every user wants to get the best possible service out of his wire rope but it is amazing how often simple rules are broken in the field. Some operators are careless when installing a new rope . . . they keep machines running when sheaves are badly worn . . . they overload the rope . . . they forget to lubricate the rope.

To help eliminate these human failings, the American Steel & Wire Company maintains a staff of TIGER BRAND Wire Rope Specialists. These men are experienced field service engineers. If you have not checked your equipment recently, for correct wire rope application, call in the TIGER BRAND Specialist. He'll do the job for you without charge. Here are some of the points he checks before recommending the proper wire rope for your job—

1. Method of installing and caring for rope.
2. Diameter of sheaves and drums, and condition of grooves.
3. Arrangement of sheaves.
4. Fleet angles.
5. Loads handled.
6. Rope speeds, acceleration and deceleration.
7. Presence of vibration, whipping.
8. Lubrication.
9. Corrosion.
10. Amount of scrubbing and abrasion.
11. Fitting attachments.
12. Abuses to be corrected.
13. Analysis of service records.
14. Finally: Recommendation of the correct rope to meet all conditions.

To show you how you can save money on wire rope, we have prepared a booklet on proper wire rope application that every user of wire rope should read. You can get a copy by mailing the coupon.

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
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Send me your booklet, "Valuable Facts about the use and care of Wire Rope."

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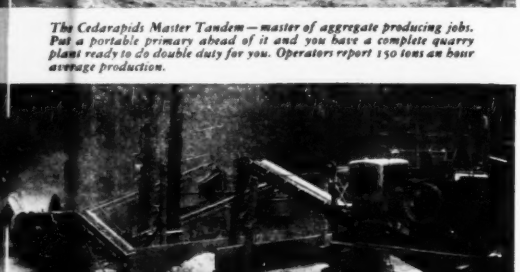
Excellay Preformed

UNITED STATES STEEL

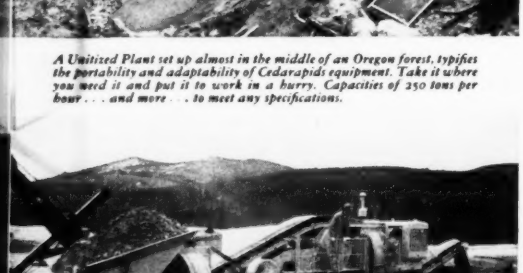
More tons per day
More hours of trouble-free operation
More profits
} **and Lower Costs.**

PORTABLE CRUSHING and SCREENING PLANTS

The Cedarapids Master Tandem—master of aggregate producing jobs. Put a portable primary ahead of it and you have a complete quarry plant ready to do double duty for you. Operators report 150 tons an hour average production.



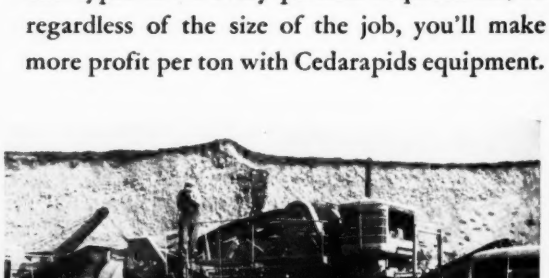
A Unitized Plant set up almost in the middle of an Oregon forest, typifies the portability and adaptability of Cedarapids equipment. Take it where you need it and put it to work in a hurry. Capacities of 250 tons per hour . . . and more . . . to meet any specifications.



One of the most popular of the Cedarapids line is the Junior Tandem with many contractors telling of production of more than 110 tons per hour, crushing to ⅝" with 75% of the material needing reduction. Big capacity and low cost at its best.

OPERATORS everywhere report they are getting larger volume production, greater flexibility and more hours of trouble-free operation with Cedarapids portable crushing and screening plants.

The installations shown are typical of Cedarapids equipment everywhere. With their large capacity and wide product diversification, they turn out better products at lower cost with very low maintenance. These plants are made up of Cedarapids matched crushers, screens and conveyors—balanced and coordinated for the most efficient operation. They are built in sizes and types to fit every product requirement, so regardless of the size of the job, you'll make more profit per ton with Cedarapids equipment.



In Wisconsin, a Cedarapids Pitmaster produces aggregates for secondary roads—There's lots of crushing capacity in the 10" x 16" jaw crusher and 16" x 16" roll crusher. Cedarapids horizontal vibrating screen assures the accurate grading required today.

Cedarapids
Built by IOWA

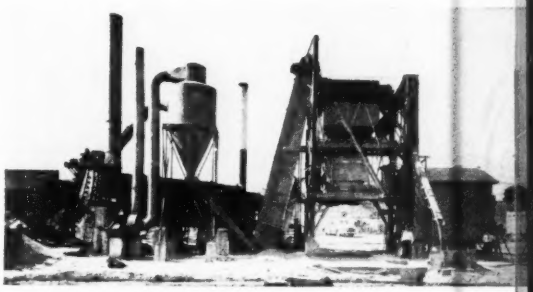
THE IOWA LINE of Material Handling Equipment is distributed by
G. C. PHILLIPS TRACTOR CO., INC., Birmingham 3, Ala.; KERN LIMERICK, INC., Little Rock, Ark.; PERSINGERS, INC., P. O. Box 1866, 520 Elizabeth St., Charlestown, W. Va.; PERSINGERS SUPPLY CO., Williamson, W. Va.; FLORIDA-GEORGIA TRACTOR CO., Jacksonville, Miami, Lakeland, Tallahassee and Orlando, Fla., Savannah and Waycross, Ga.; YANCEY BROTHERS CO., Atlanta and Augusta, Ga.; THE G. W. VAN KEPPEL CO., Kansas City, Mo.; WILSON MACHINERY & SUPPLY CO., Lexington 15, Ky.; McCLUNG-LOGAN EQUIPMENT CO., INC., Baltimore, Md.; JACKSON ROAD EQUIPMENT CO., Jackson, Miss.; E. F. MARSH CO., St. Louis 10, Mo.; NORTH CAROLINA EQUIPMENT CO., Raleigh, Charlotte, Asheville & Wilmington, N. C.; SOUTHWEST MACHINERY CO., Oklahoma City, Guymon, Hobart and Tulsa, Okla.; SOUTHERN EQUIPMENT SALES CO., Columbia & Greenville, S. C.; ROAD BUILDERS EQUIPMENT CO., Memphis 2, Tenn.; OSBORNE EQUIPMENT CO., Knoxville and Chattanooga, Tenn.; BROWNING-FERRIS MACHINERY CO., Dallas and Houston, Texas; TRI-STATE EQUIPMENT CO., El Paso and Odessa, Texas; CONTRACTORS MACHINERY CO., San Antonio, Texas; VIRGINIA TRACTOR CO., INC., Richmond, Roanoke, Waynesboro and Norfolk, Va.; WEST VIRGINIA MINE SUPPLY CO., Clarksburg, W. Va.; THOMPSON & GREEN MACHINERY CO., Nashville, Tenn.; DUNHAM-PUGH CO., INC., 1335 Choctaw Rd., P. O. Box 1068, Baton Rouge, La.

. . with Cedarapids Equipment!

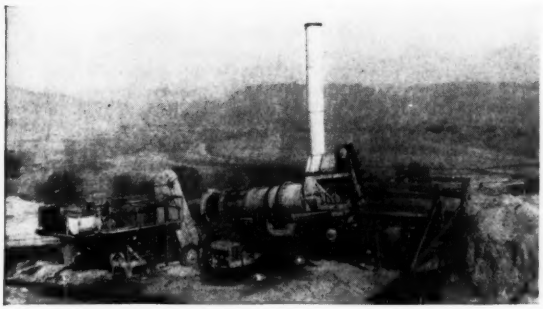
BITUMINOUS MIXING PLANTS

300 to 400 tons per day of thoroughly mixed bituminous material is the average of this Cedarapids Model "FA" super-portable batch-type plant. With drier and dust collector, you can meet the most exacting specifications.

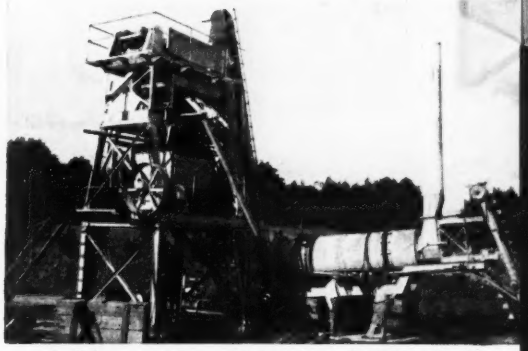
THESE bituminous mixing plants are typical of Cedarapids plants everywhere . . . producing a constant flow of a variety of bituminous mixes for building dependable, all-weather roads and streets. Each feature is built for simplicity of operation, maximum efficiency and easy portability. They'll deliver more tons per hour and they'll not only do it better, but at a lower cost. Made up of matched screens, pugmills, elevators and other component parts, Cedarapids Bituminous Mixing Plants produce thoroughly mixed materials, with each particle of aggregate completely coated with bitumens. When buying bituminous mixing plants, buy the best. Buy Cedarapids — a complete line of batch type and volumetric-type mixing plants.



Cedarapids Model "E" with dust collector in Pennsylvania produces large volume of accurately batched and thoroughly mixed black top for roads and airports at remarkably low cost, and it's portable, too.



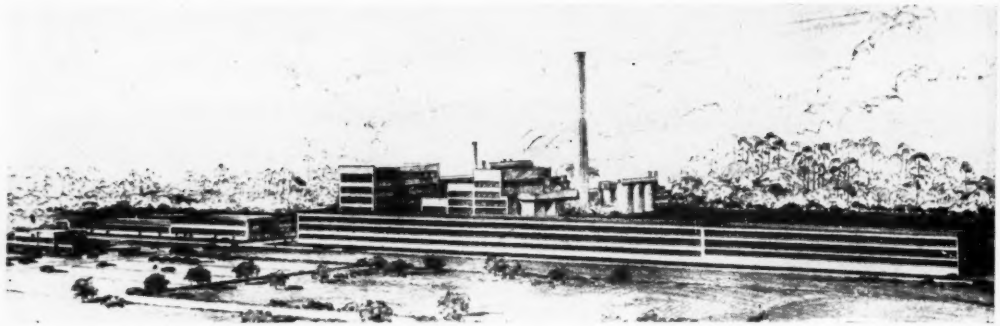
20 to 30 tons per day of patching material is the job for a Cedarapids Patchmaster. It's a real low cost, lightweight, profit maker that you can use as portable or stationary continuous-mix plant. The Master Mixer—also a continuous mix type — has a capacity of 100 to 150 tons per hour.



In Alabama, one of the newest Cedarapids 1,000 lb. Model "A" batch-type plant turns out 75 to 100 tons per day. Here's a plant you can set up quickly for all your medium-sized jobs.

IOWA MANUFACTURING COMPANY

Cedar Rapids, Iowa, U.S.A.



Above—The world's first rayon pulp mill to use a newly developed process for making rayon from woodpulp will be erected at Natchez, Miss., by the Southern Kraft division of the International Paper Co. All work, with exception of site clearing and excavation, will be done by company forces.

Southern Construction Makes Strong Start

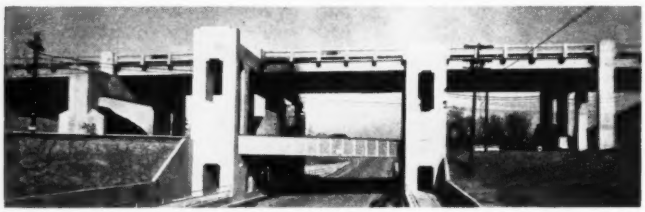
January Awards Total $259,542,000

PREDICTIONS that 1949 would rival last year as a peak period of peacetime construction were strengthened in January when contracts awarded in the sixteen southern states totaled $259,542,000, a forty-nine per cent gain over the value for January of 1948 and an all-time high when compared with its counterparts of the past, both during war and peace.

The forecasts, which were made by both government agencies and officials of the national contracting organization, anticipated a total volume of work for the entire country in the neighborhood of eighteen billion dollars, to which would be added other billions of dollars for maintenance and repairs. Shifts in the amount of private and public construction were foreseen, with the one rising and the other perhaps experiencing a decline.

Publicly financed work in the area below the Mason and Dixon line during January amounted to $135,388,000, or fifty-two per cent of the month's total, and privately financed construction aggregating $124,154,000, or forty-eight per cent. The pattern diverges from that expected in the forecasts. Private contracts gained one hundred ten per cent, while public construction trailed with a sixteen per cent rise, when compared with January of 1948.

Below—Virginia last year spent $48,750,000 for highway work, including $32,000,000 for construction and $16,750,000, all of the latter on secondary roads being a state function. Primary system completions total 218 miles, including 39 miles of four-lane highway; on the secondary system were built 500 miles of hardsurfaced roads and 200 new bridges. The three-level railroad-highway interchange near Norfolk was one of the 67 new primary system bridges built.



Private Building Up

The private work embraces $74,683,000 for general building and $49,471,000 for industrial construction. Both are up when compared with values for January of 1948. The general building increase is more than one hundred twenty-seven per cent: the rise in industrial construction, ninety-five per cent.

Elements in the January $135,388,000 public construction figure were $52,354,000 for public building, $50,021,000 for roads, streets and bridges and $33,013,000 for heavy engineering construction. Highway and engineering construction are up fifty-six and sixty-one per cent, respectively, above the value for such work in January of 1948. Public building, however, is down about twenty per cent.

Decline from December

Compared with its immediate predecessor—December of 1948—the current January total represents a decline of twenty per cent. Highway, private building and engineering construction showed increases; public and industrial construction dropped. The rise in highway work value was thirty-nine per cent; in engi-

SOUTH'S CONSTRUCTION BY STATES

January, 1949

	Contracts Awarded	Contracts to be Awarded	Contracts Awarded January 1948
Alabama	$5,815,000	$93,720,000	$9,852,000
Arkansas	3,173,000	52,847,000	1,691,000
Dist. of Col.	7,598,000	3,595,000	7,060,000
Florida	22,326,000	23,569,000	10,721,000
Georgia	15,265,000	35,075,000	5,906,000
Kentucky	3,304,000	19,406,000	1,986,000
Louisiana	14,394,000	37,457,000	23,378,000
Maryland	13,901,000	122,622,000	9,584,000
Mississipi	7,349,000	13,466,000	9,272,000
Missouri	8,501,000	75,957,000	8,332,000
N. Carolina	33,173,000	14,918,000	8,013,000
Oklahoma	17,251,000	39,445,000	7,261,000
S. Carolina	9,383,000	20,161,000	2,964,000
Tennessee	16,473,000	233,686,000	2,665,000
Texas	80,341,000	256,987,000	53,613,000
Virginia	5,915,000	49,822,000	5,843,000
W. Virginia	380,000	10,355,000	6,000,000
TOTAL	$259,542,000	$1,102,188,000	$174,991,000

neering projects, seventeen per cent; in private building, twenty per cent. The decreases in industrial and public work were one hundred seventy-four and twenty-three per cent, respectively.

Private building, the major contributor to the January private building figure, includes $37,287,000 for residential construction; $15,513,000 for commercial building; $11,775,000 for office type structures and $10,108,000 for assembly buildings. These are all up, when compared with January of 1948. Only two categories —commercial and office building—are up when compared with December.

Engineering Construction

In the January engineering construction figure were $15,936,000 for dams, drainage, earthwork and airports, $10,753,000 for sewers and water works and $6,324,000 for government electric projects. Government buildings with a value of $16,268,000 and school building with a total of $36,086,000 made up the public building total. School building almost equaled the total for the preceding month.

Building material production, which is understood to have broken all previous records last year, this year is expected to increase still further. James M. Ashley, president of the Producers Council, says that materials requirements in 1949 will probably be smaller than in 1948, consequently making the supply equal to or larger than the demand.

Steel Supply Tight

The steel supply will probably be tight; cement supplies will be sufficient, but no surplus will be available, he predicts, with possible local shortages due to the geographical locations of cement plants.

Construction lumber is no longer a problem, viewed from the angle of supply. There is no surplus of millwork, although order backlogs have been dwindling. Gypsum board and lath, roofing materials, building board, insulation board and materials, plumbing fixtures and brick and tile should be available as needed.

Steel pipe is declared the most difficult construction material to obtain. Fabricated structural steel has been available in required quantities, but often with a waiting period of several months. Nail production has improved and local shortages are not as widespread as a year ago.

Equipment Sales Outlook

What might be considered a barometer of the immediate outlook was a survey made public at the January meeting of the nation's equipment distributors. The majority of these expect a drop in sales volume and lower profits this year, with increasing buyer competition and keen competition and many prospective buyers "priced out of the market."

Pre-election optimism has changed to uncertainty marked by a "wait and see" attitude. Threats of "more government" were evident in the presidential message to Congress, which was asked to provide for expenditures such as $1,861,000,000 for

(Continued on page 50)

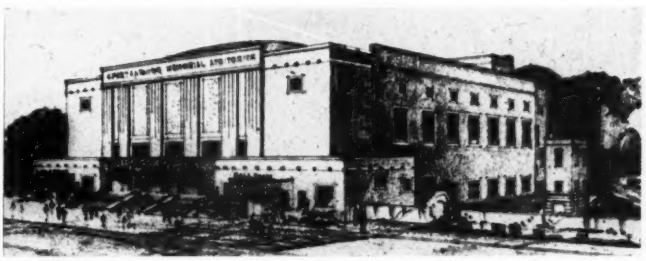
Above—Perspective of building proposed at Taylorsville, N. C., by Alexander County Hospital Association. Features include concrete slab on fill with radiant heat, masonry exterior walls, steel bar joists and built-up type roof. J. N. Pease & Co., of Charlotte, N. C., are the architects and engineers.

SOUTH'S CONSTRUCTION BY TYPES

January, 1949

PRIVATE BUILDING	Contracts Awarded	Contracts to be Awarded	Contracts Awarded January 1948
Assembly (Churches, Theatres, Auditoriums, Fraternal)	$ 10,108,000	$ 18,936,000	$ 4,115,000
Commercial (Stores, Restaurants, Filling Stations, Garages)	15,513,000	7,830,000	2,887,000
Residential (Apartments, Hotels, Dwellings)	37,287,000	82,816,000	22,650,000
Office	11,775,000	2,455,000	3,169,000
INDUSTRIAL	$ 74,683,000	$ 112,037,000	$ 32,821,000
PUBLIC BUILDING	$ 49,471,000	$ 353,762,000	$ 25,401,000
City, County, State, Federal and Hospitals	$ 16,268,000	$ 86,806,000	$ 27,834,000
Schools	36,086,000	239,018,000	35,466,000
ENGINEERING	$ 52,354,000	$ 325,914,000	$ 63,300,000
Dams, Drainage, Earthwork, Airports	$ 15,936,000	$ 116,752,000	$ 14,278,000
Federal, County, Municipal Electric	6,324,000	69,812,000	810,000
Sewers and Waterworks	10,753,000	58,771,000	5,463,000
ROADS, STREETS & BRIDGES	$ 33,013,000	$ 245,335,000	$ 20,551,000
TOTAL	$ 50,621,000	$ 65,140,000	$ 32,018,000
	$259,542,000	$1,102,188,000	$174,091,000

Below—Spartanburg, S. C., memorial auditorium designed by Lockwood Green Engineers, Inc., of Spartanburg and New York, in collaboration with Walter W. Cook and Associates, of Dallas, Texas, for the auditorium planning and Hudson & Chapman, of Spartanburg, on supervision of construction. The project is financed by $500,000 county and $500,000 municipal bond issues.



Announcing the

New "Fleco" Heavy Duty Rock Rake

"RUGGED CONSTRUCTION"

For Rock and Boulder Clearing Operations

Successfully used in rock-fill operations and construction of water reservoirs. Rocks and boulders embedded in the soil for centuries, now easily removed. Land, heretofore unproductive, is transformed into profitable farms.

These Rakes are constructed of durable, abrasive-resistant alloy steel castings, which are mounted on heavy angle-iron frames.

They are easily attached to the modified bulldozer in place of the moldboard. If the blade is detachable from the angling frame or from the push arms, a "Fleco" Rock Rake can be mounted.

The length and height of the "Fleco" Rock Rake is approximately the same as the moldboard it replaces.

Their rugged construction enables them to stand up under difficult clearing conditions.

Practically all of the dirt passes through the approximately 12 inch spacings between the teeth and a depth of approximately 16 inches can be obtained. Therefore, rocks and boulders can be removed from the soil without moving an excessive quantity of dirt.

Florida Land Clearing Equipment Co.

1561 W. Church St. **Jacksonville 3, Florida**

"Fleco" Products are distributed by the world-wide "Caterpillar" Sales Organization.

4 views of rake mounted on a D8 equipped with a C. T. Co. No. 8 S bulldozer. Owned and operated by S. A. Healy Co., on Merriman Dam, Lackawack, N. Y.

Southern Construction Projects

ENGINEERING

Proposed Stage

FLORIDA

MIAMI BEACH—City will vote March 8 on $650,000 bonds for public improvements. Includes storm sewers.

GEORGIA

ATLANTA — Georgia Ports Authority proposes to spend $10,200,000 in converting the Savannah Quartermaster Depot to first-class port.

LOUISIANA

Department of Public Works, Col. J. Lester White, Dir., plans a $11,000,000 drainage project.

OKLAHOMA

BARTLESVILLE—City plans second phase of program which consists of an administration building, hangars, development of public hangars in north area, extension of access roads and lighting of the NE/SW grass landing strip, Municipal Airport, estimated, $400,000.

TENNESSEE

ATHENS—City plans sewage disposal plant and sewer system, $1,250,000.
COVINGTON—City plans sewer system improvements, $500,000.
NASHVILLE—Davidson County plans county sewerage system, $15,000,000.
PARIS—City plans water treatment plant and water lines, $485,000.

TEXAS

International Boundary and Water Commission, United States and Mexico, C. M. Ainsworth, First National Bank Bldg., El Paso, Consit. Engr.; plan to start building Falcon Dam in Starr County, to cost approximately $40,000,000.
DENISON—City plans election on $500,000 bond issue for water and sewer improvements.
DICKINSON—Galveston County Water Control and Improvement District No. 1 approved $634,000 bond issue for water lines, sewage treatment plant, sewer line extensions.
DALLAS — City plans storm sewers, $2,900,000; sanitary sewer lines, $4,500,000; sanitary sewage disrosal and treatment plant improvements, $1,000,000; purification plant, $1,500,000.
DALLAS—City plans underground storage, $1,500,000; additional water mains and distribution lines throughout city, $2,000,000; larger cast iron mains serving outlaying distribution, $2,500,000; steel storage water tanks or towers, $1,500,000; supplementary water plant, $6,000,000.
VIDOR — City Council approved $550,000 bond issue for water works improvements.

VIRGINIA

NORFOLK — City Council approved $6,250,000 bond issue for expansion of Norfolk's water system.

Contract Stage

ARKANSAS

HOT SPRINGS—Board of Public Affairs let contract to S. E. Evans Construction Co., Fort Smith, $275,789, for water supply line.

KENTUCKY

BURNSIDE—U. S. Engineer, Nashville, received low bid from Bush Building Co., 805 S Ave., Nashville, $280,884, for water treatment plant, water distribution system, street improvements.

LOUISIANA

Corps of Engineers, Mobile, Ala., let contract to Maxon Construction Co., Inc., 131 N. Ludlow St., Dayton, Ohio, $1,333,505, for construction of Lock No. 3, Pearl River, in Mississippi and Louisiana.
ABBEVILLE—Corps of Engineers, New Orleans, received low bid from Jahncke Service, Inc., 814 Howard Ave., $414,960, for dredging and disposal of approx. 2,600,000 cu. yds. of material from channel of Vermilion River in Vermilion Parish.
HOUMA — Terrebonne Parish Police Jury let contract to Monroe J. Wolfe, 10 Beverly Gardens, New Orleans, $242,262, for 1,548,000 cu. yds. of channel excavation.
RAPIDES PARISH — Corps of Engineers, New Orleans, let contract to Pioneer Contracting Co., Inc., Dyersburg, Tenn., $375,540, for 2,845,000 cu. yds. of material from Diversion Channel Bayous Bouef-Cocodrie and channel realignment and excavation.
CAMERON PARISH—Corps of Engineers, New Orleans, let contract to Atlantic, Gulf & Pacific Co., 15 Park Row, New York, $479,721, for removal and disposal of approx. 3,489,000 cu. yds. of material from Calcasieu River and Pass and 6x20-foot connecting canal.

MISSISSIPPI

Corps of Engineers, St. Louis, Mo., received low bid from Batzli Electric Co., 1807 S. 1st St., Minneapolis, Minn., $685,306, for construction and installation of power control and lighting system for Lock No. 27, Mississippi River, Chain of Locks Canal Project.

MISSOURI

CLAYTON—Board of Aldermen let contract to R. W. George Construction Co., Webster Groves, $396,503, for additional storm relief sewers in central Clayton.

NORTH CAROLINA

WILMINGTON — Corps of Engineers received low bid from Standard Dredging Co., 80 Broad St., New York, $209,285, for dredging Cape Fear River at and below Wilmington Turning Basin and portion of Fourth East Jetty Channel.

OKLAHOMA

ENID—City let contract to Lock Joint Pipe Co., East Orange, N. J., $965,837, for pressure water pipe, water supply improvements.
GORE—Corps of Engineers, Tulsa, received low bid from W. K. McIlyar, 8505 Douglas Ave., Dallas, Tex., $3,599,623, for spillway and outlet works, Tenkiller Ferry Dam, Illinois River, in Sequoyah County.

TEXAS

DALLAS—City Council let contract to W. G. Cullum & Co., $424,482, for laying 5.2 miles of water pipe in University Park and Highland Park.
FORT WORTH—City let contract to Glade-Friedman-Byrne, Century Bldg., $350,000, for construction of Sedimentation Basin No. 3.
FREEPORT—Corps of Engineers, 606 Santa Fe Bldg., Galveston, let contract to Continental Construction Co., Port Lavaca, $949,925, for steel sheet piling guide walls, Gulf Intracoastal Waterway, flood gates at Brazos River Diversion Channel.
HOUSTON—Corps of Engineers, 606 Santa Fe Bldg., Galveston, let contract to Atlantic, Gulf and Pacific Co., New York, $252,502, for dredging Houston Ship Channel from vicinity of Baytown to Tucker Bayou, in Harris County.
PORT LAVACA—Corps of Engineers, 606 Santa Fe Bldg., Galveston, let contract to Standard Dredging Co., 80 Broad St., New York, $886,566, for dredging Gulf Intracoastal Waterway, between Matagorda Bay and San Antonio Bay, in Calhoun County.

INDUSTRIAL

Proposed Stage

ALABAMA

CENTRE — Cherokee Electric Cooperative has REA loan, $610,000, for 60 miles line, system improvements.
CLAYTON—Pea River Electric Cooperative has REA loan, $960,000, for 294 miles line, to serve 1,162 rural consumers.
DEMOPOLIS—Negotiations are in progress for establishment of an $80,000,000 rayon and cellophane plant on the Tombigbee River.
FORT PAYNE — Sand Mountain Electric Cooperative has REA loan, $1,020,000, for 300 miles line.

ARKANSAS

North Arkansas Electric Cooperative, Inc., Salem, plans improving lines and addition of 335 miles rural distribution lines; $1,300,000.
Arkansas Electric Cooperatives plan $20,000,000 project.
FAYETTEVILLE — Ozarks Rural Electric Cooperative Corp. plans $605,000, for 199 miles line.
FORREST CITY — Arkansas Power and Light Co., Pine Bluff, plans power station; $15,000,000.

GEORGIA

ATLANTA — Louisville & Nashville Railroad, Louisville, Ky., proposes warehouse facilities on Donnelly Ave.; $1,000,000.
DUDLEY — Oconee Electric Membership Corp. plans $850,000, 368 miles line.

KENTUCKY

CORBIN—Cumberland Valley Rural Electric Cooperative Corp. plans $950,000 for 312 miles line.
FLEMINGSBURG — Fleming-Mason Rural Electric Cooperative plans $800,000, extensions to existing lines.
LEXINGTON—Kentucky Utilities Co. seeks Securities Exchange Commission authority to sell $10,000,000 30-year first mortgage bonds. Series B, to pay off bank notes and finance construction.

LOUISIANA

BATON ROUGE — Dixie Electric Membership Corp. plans $3,242,000 generating plant.
BOGALUSA—Gaylord Container Corp. plans $2,000,000 bag plant south of present container plant; present container building will be remodeled and will be used for the box factory.

MARYLAND

BALTIMORE — Revere Copper and Brass, Inc., plans revamping of both the breakdown and rundown copper mills; construct several motor enclosure houses; $600,000.

MISSISSIPPI

JACKSON — Mississippi Chemical Corp., Owen Cooper, executive vice-president, has selected Girdler Corp., Louisville, Ky., as engineers to make detailed engineering survey in connection with $12,000,000 nitrogen plant.
MERIDIAN—East Mississippi Electric Power Association plans $980,000, 260 miles line.
NATCHEZ — City and Adams County approved issuance of $300,000 bond issue for purchase of a site for $20,000,000 rayon pulp plant for International Paper Co., J. H. Friend, vice-president and general manager of the Southern Kraft Division.

MISSOURI

ELDORADO SPRINGS — Sac-Osage Electric Cooperative plans $825,000, 383 miles line, to serve 880 rural consumers.
KANSAS CITY — Kansas City Power & Light Co., H. B. Munsell, Pres., selected Ebasco Services, Inc., New York, N. Y., to design and direct construction and engineering of $27,000,000 power generating plant, between Truman Bridge and Mouth of Blue River.
KANSAS CITY — International Harvester Co. plans $8,000,000 plant.
MALMYRA — Northeast Missouri Electric Power Cooperative plans $5,886,000, 7,500 KW steam generating units, transmission facilities, including 282 miles transmission line, 13 new sub-stations and switching station.
ST. LOUIS — Missouri Pacific Lines plans expenditure of $13,147,010 for system-wide improvements.

NORTH CAROLINA

WILMINGTON—Lloyd A. Fry Roofing Co., Chicago, Ill., plans $750,000 plant for manufacture of asphalt composition shingles, roll roofing and siding.

OKLAHOMA

Oklahoma Gas & Electric Co., 321 N. Harvey St., Oklahoma City, plans electric power lines, gas lines, electric power and gas plants, Oklahoma City and Tulsa; $7,500,000.
CLEVELAND—Indian Electric Cooperative plans $835,000, 358 miles line.
DECATUR—Volunteer Electric Cooperative plans $1,460,000, 283 miles line.
DURANT — Southeastern Electric Cooperative plans $635,000 for improvements and 281 miles line.
OKLAHOMA CITY—Fleming Co. plans dry grocery warehouse and produce warehouse; $200,000.

SOUTH CAROLINA

Cranston Print Works, Cranston, R. I., announced plans for $3,500,000 plant.
COLUMBIA—Hercules Tractor Corp., Auburn, Ohio, plans tractor factory; $250,000.
COLUMBIA—Central Electric Power Cooperative plans $7,595,500, 834 miles transmission line.

TENNESSEE

CHATTANOOGA — Hunt, Caton & Assoc., James Bldg., Chattanooga, Archts., have plans in progress for remodeling structure for ware-

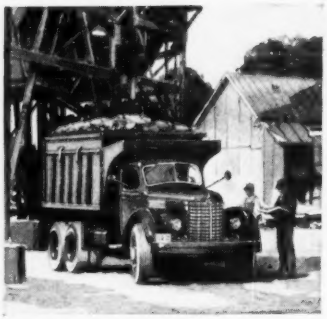
(Continued on page 44)

What it takes to stay heavyweight champ 17 years

1. Real heavy-duty truck reputation!

To haul lots of oil, you pick a he-man truck that's made for the job. You pick a truck with a record of performance that shouts "TOUGH!" You pick an International Truck.

Registration figures show that for 17 straight years Internationals have led the heavy-duty truck field.



2. Real heavy-duty power!

On construction jobs you need a truck that can take a pounding . . . a truck with a powerful engine, a rugged frame, sturdy strength through and through.

You find trucks like that at International Harvester . . . a builder of truck power for 42 years, a manufacturer who knows what tough trucks need.

3. Real heavy-duty truck engineering!

On big logging jobs you need size, brute strength and power . . . *specialized* by people who know your job in terms of trucks.

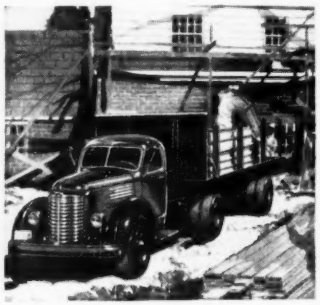
International heavy-duty trucks are big, tough, powerful—and *specialized* to handle the toughest hauling jobs. That's our engineering tradition.

5. That's why International trucks are heavyweight champs for heavy-duty jobs—

For 17 straight years, International heavy-duty trucks have been America's first choice for heavy-duty work. Registration figures prove it. In trucks having gross weight ratings over 16,000 pounds, Internationals are so far ahead of the field that the heavyweight crown carries a Triple Diamond emblem.

Right now, International Dealers and Branches can give you quick delivery on International heavy-duty trucks . . . specialized trucks, engineered and powered for your job.

Your nearest International Truck Dealer or Branch will be glad to send a qualified transportation engineer to analyze your hauling problem, to give you facts and figures on equipment to meet your specific needs, to answer any questions you may have. Call him soon.



4. Real heavy-duty truck stamina!

Housing is a big job where you measure truck toughness by years of getting the work out and keeping the costs down on all hauling operations.

You can count on years of service from International heavy-duty trucks. The nation's largest exclusive truck service organization is set up to keep Internationals operating at peak efficiency, over the long haul.

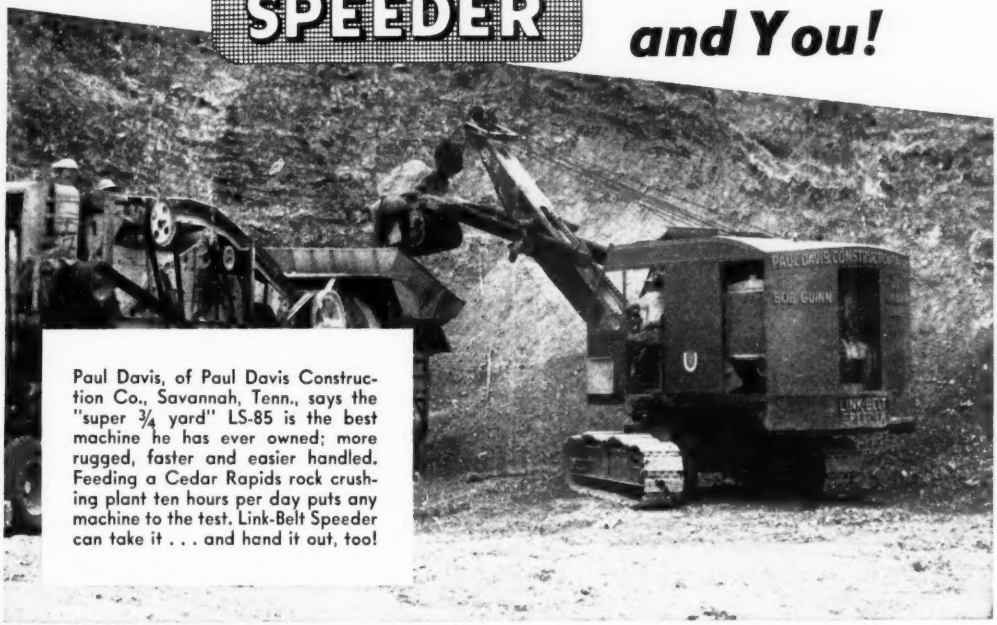
Other International Harvester Products
Farmall Tractors and Machines
Industrial Power . . . Refrigeration

Tune in James Melton and "Harvest of Stars" CBS, Wednesday evenings

INTERNATIONAL TRUCKS

INTERNATIONAL HARVESTER COMPANY • CHICAGO

There's a LINK-BELT SPEEDER for You --- and You --- and You!



Paul Davis, of Paul Davis Construction Co., Savannah, Tenn., says the "super ¾ yard" LS-85 is the best machine he has ever owned; more rugged, faster and easier handled. Feeding a Cedar Rapids rock crushing plant ten hours per day puts any machine to the test. Link-Belt Speeder can take it . . . and hand it out, too!

BROAD LINE MEETS PRACTICALLY EVERY REQUIREMENT

Need a small, nimble, fast-moving, convertible shovel-crane-trench hoe combination for a lot of small jobs? Or a large high capacity dragline for gravel pit or strip mine?—(or something in between?)

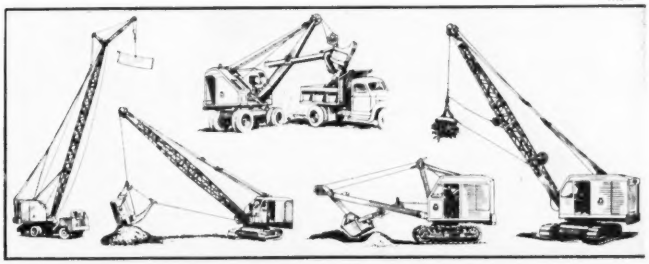
The nearest Link-Belt Speeder distributor will show you a line of machines up to 3 yard capacity, that includes a type and size to suit. All are true representatives of Link-Belt Speeder advanced engineering, long-life, low cost operation. And every Link-Belt Speeder distributor has parts and trained personnel to keep these machines in tip-top operating condition.

•

Can't you see the money-making possibilities in these convertible Link-Belt Speeders?

•

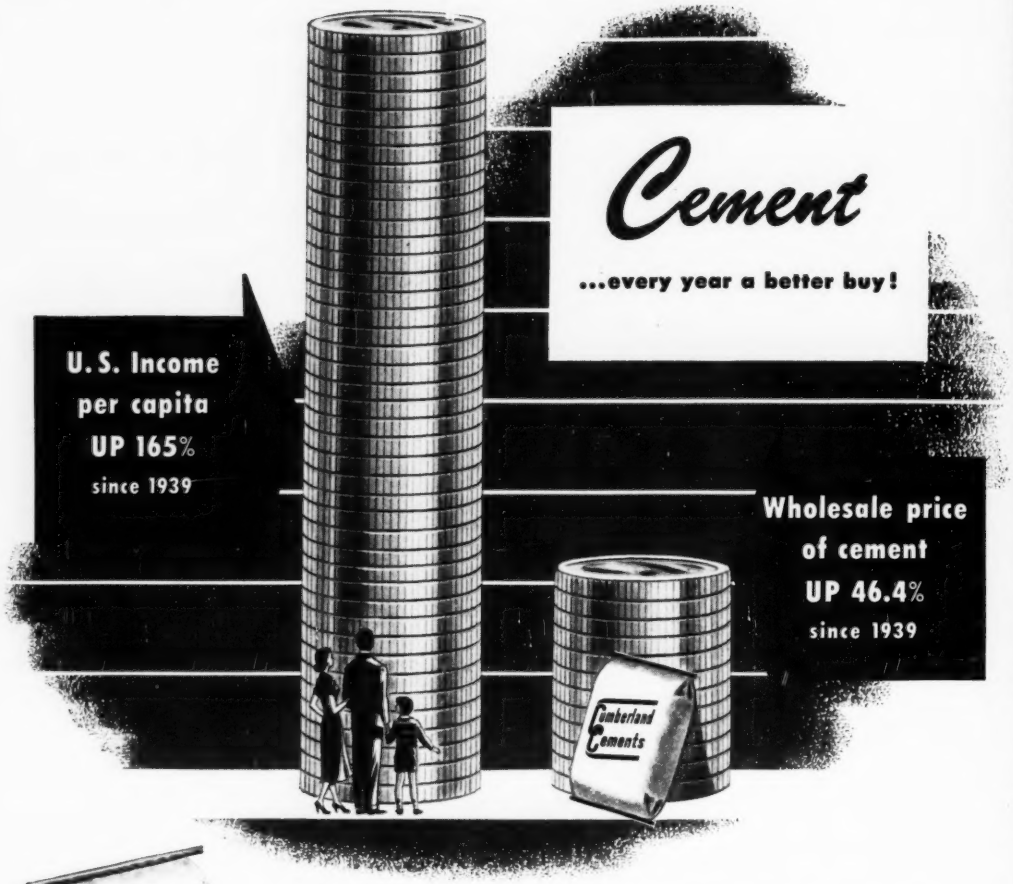
Quick, easy convertibility to any of the usual front-end attachments makes the Link-Belt Speeder a multi-purpose machine capable of working at more jobs, more of the time.



LINK-BELT SPEEDER

LINK-BELT SPEEDER CORPORATION, CEDAR RAPIDS, IOWA

Builders of the Most Complete Line of
SHOVELS-CRANES-DRAGLINES



The income of the average American has increased 165% since 1939—more than *three and one half times* the increase in the wholesale price of cement for the same period.

These figures—based on latest available reports from the U. S. Bureau of Labor Statistics and the Department of Commerce—are further evidence that despite rising costs of manufacturing you get more cement for your money now than ever before.

Look at it from *any* angle and the answer is the same: Cement is CHEAP!

Today, more than ever, cement is your best buy!

Cumberland

PORTLAND CEMENT COMPANY

Chattanooga Bank Building • • Chattanooga 2, Tenn.

Portland — High Early Strength — Air Entraining — Masonry

Cumberland Cements

CHOOSE "QUICK-WAYS" FOR SURE PROFITS

REG. U. S. PAT. OFF.

PORTABILITY AND CAPACITY . . . these are the fundamentals you KNOW you want in a truck shovel. You get PORTABILITY in a *"QUICK-WAY"* because it is built of steel for lightness and strength, no heavy counter-weights to slow you down. You get CAPACITY because balance and stability are designed into your *"QUICK-WAY"*.

In addition you get **SPEED . . . PERFORMANCE . . . VERSATILITY . . . INTERCHANGEABILITY . . . SIMPLICITY . . . ECONOMY OF OPERATION . . . LOW FIRST COST . . . LOW MAINTENANCE . . . and EXTRA PROFITS.**

A *"QUICK-WAY"* mounts on ANY standard truck of proper size to go anywhere a truck can go at truck speed. A *"QUICK-WAY"* is CONVERTIBLE IN MINUTES from SHOVEL to CRANE, DRAGLINE, CLAM-SHELL, PILE DRIVER, SCOOP, TRENCH-HOE or BACK FILLER. You buy only the attachments you want. A *"QUICK-WAY"* is simply built, with many interchangeable parts, all easy to service . . . and durable.

THE FUNDAMENTALS built into every *"QUICK-WAY"* add up to sure profits on a small investment, with one of the most useful machines you can own.

NO MATTER WHAT OTHER EQUIPMENT YOU OWN, you need *"QUICK-WAYS"* too. There's a *"QUICK-WAY"* owner near you; ask HIM.

"QUICK-WAY" TRUCK SHOVEL CO., Denver

Service available from Distributors strategically located in U. S. and worldwide.

MODEL E: 4/10 cu. yd. cap. for mounting on any standard 5-ton truck.

MODEL J: 1/4 cu. yd. cap. for mounting on any standard 1½-ton truck.

"QUICK-WAY" TRUCK SHOVEL DISTRIBUTORS:

BRANDEIS MACH. & SUPPLY CO.
Louisville, Evansville

FLORIDA-GEORGIA TRACTOR CO. OF GEORGIA
Savannah, Waycross

FLORIDA-GEORGIA TRACTOR CO. OF JACKSONVILLE
Jacksonville

FLORIDA-GEORGIA TRACTOR CO. OF TAMPA
Tampa, Lakeland, Orlando

FLORIDA-GEORGIA TRACTOR CO. OF MIAMI
Miami

FLORIDA-GEORGIA TRACTOR CO. OF TALLAHASSEE
Tallahassee, Florida

HAMPTON RDS. TRACTOR & EQUIP. CO.
Norfolk

INDUSTRIAL TRACTOR & EQUIP. CO.
Nashville

NORTH CAROLINA EQUIPMENT CO.
Raleigh, Charlotte, Asheville, Wilmington, Raleigh, Guilford

FREE STATE EQUIPMENT CO.
Baltimore, Md.

POWER EQUIPMENT COMPANY
Knoxville, Chattanooga

RAY BROOKS MACHINERY CO.
Montgomery

RISH EQUIPMENT CO.
Charleston, Cincinnati, Clarksburg, Richmond, Roanoke

SOUTHERN EQUIPMENT SALES CO.
Columbia

TRI-STATE, INC.
Atlanta, Macon

TRI-STATE TRACTOR CO.
Albany, Ga.

Switch to a HENDRIX

FOR MORE PROFIT . . . LOWER MAINTENANCE

- ★ Full Payload Every Time . . . FOR MORE PROFIT.
- ★ Rugged all-welded construction . . . LOWER MAINTENANCE COST.
- ★ 12% Manganese Steel Chains and Fittings . . . STANDARD ON ALL TYPES AND SIZES.
- ★ A Type for every job . . . light, medium, or heavy-duty. WITH OR WITHOUT PERFORATIONS.

BREAKDOWNS caused by faulty machines or equipment result in loss of time and money. Hendrix Lightweight Dragline Buckets are designed to handle and are capable of handling all types of excavating with less loss of time and with less maintenance.

The HENDRIX is a *tough bucket!* Manganese Steel chains, fittings, and tooth points take the brunt of abuse. The all-welded construction assures maximum strength during operations. Perfectly balanced, this is the one bucket with which operators can easily get a full payload every trip. It's the one bucket operators throughout the country know can "take it" and give long-lasting service.

HENDRIX *Lightweight* **DRAGLINE BUCKETS**

For descriptive literature ask your dealer or write to

HENDRIX MANUFACTURING CO., INC.

MANSFIELD — LOUISIANA

Figures Refute Propaganda

Does the post-war home building carried out by private enterprise work advantages for the well-to-do to the detriment of low-income families?

Proponents of public housing would answer that query with a loud and resounding affirmative, but the facts show otherwise. Those who advocate government housing wail that all today's houses are priced out of reach of the average working man. Let's analyze some of the government's own figures.

Private industry is building houses at the rate of approximately a million a year. Economists agree that a family can afford a house costing two and a half times the annual income of that family. Anything above that ratio may lead to dangerous skimping on other essentials. This yardstick has been applied in compiling the following figures.

Thirteen per cent of American families earned less than $1,000 a year in 1947. All except the bleeding hearts will agree that such families are hardly candidates for any kind of new housing. The breakdown for the rest is as follows:

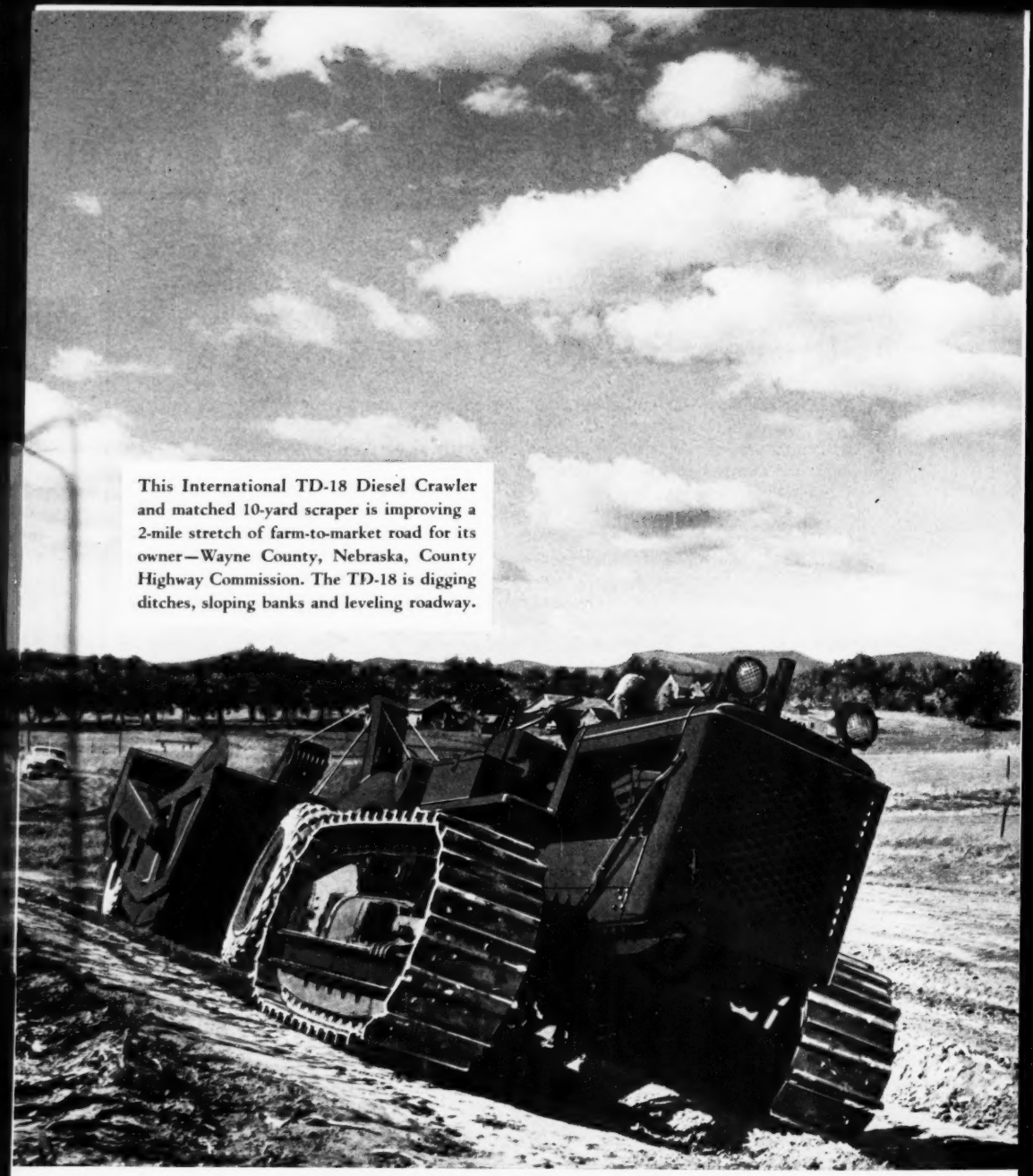
Family Income Range	% of Families in Nation	% of Homes They Can Afford Built in 1947
$1,000-$2,000	15	20
$2,000-$3,000	20	23
$3,000-$4,000	18	25
$4,000-$5,000	13	18
$5,000 up	21	14

It is apparent at a glance that every income bracket but the highest is well off proportionately. The objection may be raised, however, that 1,000,000 houses a year is not enough. In answer to that, here is another table:

1,000,000 houses a year for 10 years	10,000,000
New families formed during this period	4,380,000
	5,620,000
Units lost through fire and other disaster	400,000
	5,220,000
Units to alleviate present doubling and restore 4% vacancy rate	2,340,000
	2,880,000

The last figure represents the number of obsolete houses to be removed from the market in a ten-year period. If the actual figure turns out to be less, then 1,000,000 houses a year is simply too many.

The next time someone suggests that government should be a father to us all in the matter of putting a roof over our collective heads, recollection of these tables may serve to refute their arguments.



This International TD-18 Diesel Crawler and matched 10-yard scraper is improving a 2-mile stretch of farm-to-market road for its owner—Wayne County, Nebraska, County Highway Commission. The TD-18 is digging ditches, sloping banks and leveling roadway.

CRAWLER TRACTORS
POWER UNITS
DIESEL ENGINES
WHEEL TRACTORS

INTERNATIONAL

CO$T-CON$CIOU$ COUNTY COMMISSIONERS *Choose* INTERNATIONALS

Stretching county road construction and maintenance money to do the job takes a bit of doing. That's why cost-conscious county highway commissioners select International tractors and International-powered road machines. International's power-packed performance for every penny of fuel consumed pays off in work done. That means more earth moved and more miles of road built for every dollar invested.

International tractors and engines are built to stand up under the roughest going—to give you more for your money. Contractors and county boards alike, are finding Internationals pay for themselves in a hurry and then continue to pay dividends for a long time to come.

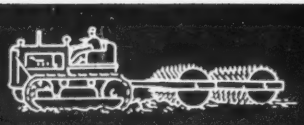
It's good to know your International Industrial Power Distributor is always on hand to help you select International equipment for your needs and to service your equipment, keeping it in top-notch operating order.

INTERNATIONAL HARVESTER COMPANY
Chicago

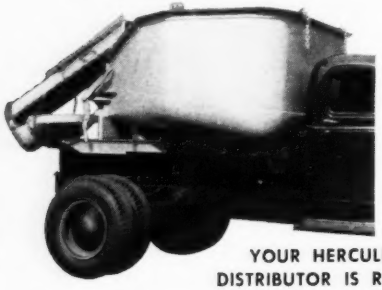
Listen to James Melton on "Harvest of Stars" every Wednesday evening—CBS

INTERNATIONAL HARVESTER

Industrial Power



Hercules WD-12 Dump Body, equipped with Hercules 7X "Center-Lift" Hoist. Note integrated underbody construction, with crossmembers and longitudinals welded into a single, exceptionally sturdy unit.



The Hercules Aircreter, revolutionary new unit for hauling and placing premium-quality, air-entrained concrete, is equipped with a Hercules 8X "Center-Lift" Hydraulic Hoist for fast, clean dumping of concrete.

X = { SMOOTH, POWERFUL HOIST ACTION

The HERCULES Type X "Center-Lift" Hydraulic Hoists

Smooth, powerful lifting action—that's the advantage of the "Center-Lift" principle, pioneered by Hercules and developed to its most efficient stage in the precision-built Hercules Type X Hydraulic Hoist.

Hercules "Center-Lift" provides maximum lifting capacity with minimum use of power, prevents cramping and eliminates strain on body and hinge bolts —features that make your most difficult hauling and dumping jobs easy—and profitable.

Whatever your hauling and dumping problem, you'll find an economical solution in Hercules Hydraulic Hoists and Dump Bodies—engineered for dependable, low-cost performance on any job. Write, outlining your requirements, for complete information.

YOUR HERCULES DISTRIBUTOR IS READY TO SERVE YOU—

Aronov Auto Supply Co., Inc.
420 South 21st Street
Birmingham, Alabama

Betbeze Mfg.—Dist.
Mobile 2, Alabama

Jake Aronov Auto Parts & Tire Co.
Cor. Bell & Whitmans Streets
Montgomery 2, Alabama

J. Edinger & Son
1010 Story Avenue
Louisville 6, Kentucky

Southeastern Sales Co., Inc.
Harlan, Kentucky

J. B. Hunt & Sons
323-25 West Martin St.
Raleigh, N. C.

Mitchell Distributing Co.
Spruce Pine, N. C.

Truckers Equip., Inc.
1517 Port Avenue
Corpus Christi, Tex.

Carley Trailer & Equip. Co.
College Park, Georgia

Truck Equipment Co.
2409-11 Commerce
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Truck Equipment Co.
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Oilfield Truck Eqpt. Co.
3305-09 McKinney Ave.
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Shade Equipment Co.
Winchester, Virginia

A. S. Drumwright & Co.
1921 Brambleton Ave.
Norfolk, Virginia

Crenshaw Equip. Co.
Dabney Road
Richmond 21, Virginia

South Carolina Equip. Co.
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Columbia, S. C.

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San Antonio 2, Texas

Hercules

STEEL PRODUCTS CORPORATION • GALION, OHIO

STANDARD ENGINEER'S REPORT

RPM CALOL

TEST DATA

UNIT 6 cyl. gas Truck + Bus Engine

LUBRICANT RPM Heavy Duty Motor Oil

FUEL Chevron Gasoline

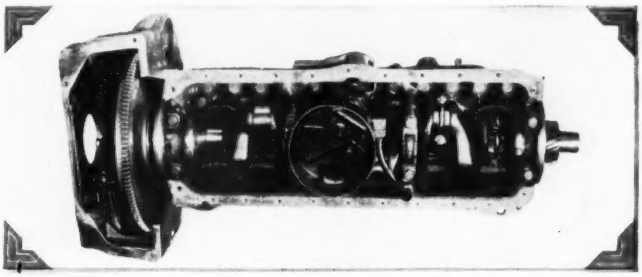
CONDITIONS max. engine loads for prolonged periods

FIRM Mountain Auto Line

LOCATION San Bernardino, Calif.

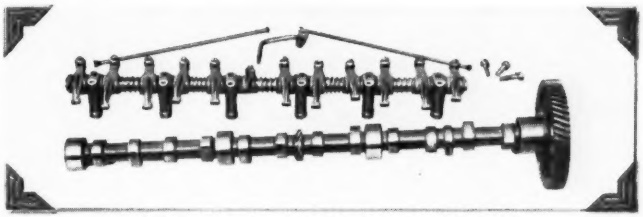
TOUGHEST MOUNTAIN SERVICE PROVES RPM HEAVY DUTY KEEPS TRUCK AND BUS ENGINES CLEAN

When this engine was pulled out of service for inspection, and the photographs were taken, it had operated on RPM Heavy Duty Motor Oil continuously for 45,000 miles—in service that is about as hard on equipment as any in the country. It is one of 21 units used on a mountain bus and freight run. They climb to a 5000-foot altitude in 15 miles without a stop. Even with 6-bladed fans, pressure-lubricated timing gears and 10-speed transmissions, crankcase temperatures soar above 240 degrees F.



As the pictures at right and above show, the crankshaft, bearings, pistons and rings from the engine were exceptionally clean. RPM Heavy Duty Motor Oil withstands the highest operating temperatures . . . sticks to the hot spots ordinary oils leave bare.

The camshaft was free from lacquer. Pushrods, timing gears and other parts showed minimum wear. RPM Heavy Duty Motor Oil resists oxidation, cleans engines of lacquer and maintains a tough lubricating film. It does this because of inherent properties of its selected base stocks and special compounds.

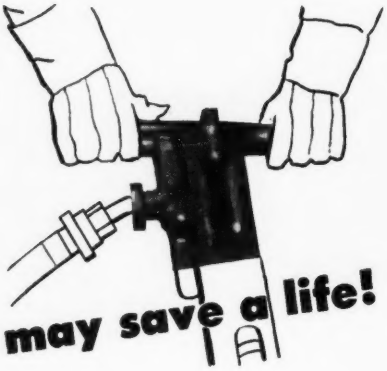


REMARKS: Many oils, competitive to RPM Heavy Duty Motor Oil, have been tested by Mountain Auto Line in their regular service. Tests have been made in all seasons of the year with atmospheric temperatures ranging from zero to 100°F. above zero in the shade. RPM Heavy Duty Motor Oil is the only oil used that meets every requirement of their engines and prevents clogging with lacquer.

Distributed by

THE AUTOLINE OIL CO.

BALTIMORE, MD. • **NORFOLK, VA.**



This "Rule of Thumb" may save a life!

A quick flip of the operator's thumb . . . and the Throttle Lever of the Gardner-Denver B87 Paving Breaker is "on safety"—securely latched to prevent accidental opening of the throttle. This Safety Latch—an exclusive Gardner-Denver feature—enables your operator to move the breaker *safely* without shutting off the air in the line. Accidents are prevented before they happen. That's one reason this paving breaker enjoys such popularity. Others are:

EASY OPERATION—*shorter from top of gad to holding handles. Easier to operate with standard length chisels and gads.*

BUILT-IN LUBRICATOR—*holds enough oil for five hours of normal operation.*

RENEWABLE CHUCK LINER — *when chuck wears to a loose fit, it is unnecessary to replace entire chuck end.*

SPECIAL FRONT HEAD ATTACHMENT—*converts the Paving Breaker into a highly efficient Sheeting Driver.*

ALL-WEATHER PERFORMANCE—*no tendency to "freeze" on cold, damp days.*

LESS OPERATOR FATIGUE—*Air Inlet at side of cylinder and not through backhead assures cool handles. It rides the steel so steadily, every hammer blow counts.*

For complete information, write
Gardner-Denver Company
Quincy, Illinois

GARDNER-DENVER
SINCE 1859

Equipment Distributors Predict Good Year

Survey Results Reveal Keen Competition, Buyer Resistance and Tighter Credit

ASSOCIATED Equipment Distributors met at Chicago last month to select new officers, discuss business prospects for this year and examine such problems as the raw material outlook for the manufacturer, local and regional cooperative advertising, equipment sales finance, training and assistance of distributor salesmen by the equipment maker and inventory and repair parts sales.

William W. Bucher, of R. E. Brooks Co., New York, was elected president, succeeding A. F. Garlinghouse. The new executive vice president is C. F. Halladay, of Sioux Falls, S. D. R. L. Arnold, of Salt Lake City, and J. A. Benson, of Houston, Texas, were reelected to vice presidencies, with Douglas G. Macpherson, of Montreal, a new vice president, and E. J. Crosby, of Boston, the new treasurer.

Directors for 1949

Regional directors named for 1949 are: John B. Perkins, Boston, for Region 1 covering Maine, New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut; W. W. Bucher and Harry J. Hush, both of New York, for Region 2, embracing New York and New Jersey; S. John Oechsle, of Philadelphia, for Region 3, Pennsylvania; Harry Teal, of Richmond, for Region 4, West Virginia, North Carolina, Maryland, Delaware and District of Columbia.

E. B. Wilkinson, of Knoxville, Tenn., is director for Region 5, Florida, East Tennessee, Alabama, Georgia, South Carolina, Puerto Rico and West Indies; J. Walker Wilson, of Youngstown, Ohio, for Region 6, Ohio and Kentucky; George E. Hillsman, of Chicago, for Region 7, Michigan, Indiana, Illinois and Wisconsin; C. F. Halladay, of Sioux City, S. D., Region 8, Minnesota, North Dakota and South Dakota; A. C. Anderson, of Omaha, Nebr., for Region 9, Iowa, Missouri, Kansas and Nebraska.

Jewell A. Benson, Houstonian, also holder of one of the vice presidencies, is director of Region 10, extending over Texas, Oklahoma and Mexico; Jack How, of San Francisco, for Region 11; William H. Booth, of Seattle, Wash., for Region 12, Idaho, Washington, Oregon and Montana; W. L. Parnell, of Shreveport, La., for Region 13, West Tennessee, Arkansas, Mississippi and Louisiana; R. L. Arnold, of Salt Lake City, Region 14, New Mexico, Wyoming, Colorado, Utah and El Paso; Douglas G. Macpherson, Region 15, Canada.

Survey Results Disclosed

Results of a survey released by A. F. Garlinghouse, retiring president, to the more than 1,500 distributors and manufacturers who attended the meeting indicated that most of the nation's construction equipment distributors foresee a drop in sales volume and lower profits in 1949. The decline, however, is not expected to be abrupt or severe. The further prediction was made that the year will be marked by a determined buyer resistance and keen competition.

Above—Associated Equipment Distributors for 1949 are: Back Row—C. F. Halladay, executive vice president; E. J. Crosby, treasurer; W. W. Bucher, president; J. A. Benson, vice president; Front Row—D. G. Macpherson, vice president, R. L. Arnold, vice president, and Frank G. Knight, executive secretary.

The "lower profits" forecast is unanimous, it was pointed out, even among those distributors who see no drop in business. Higher operating and selling costs are large contributing factors. Most important is the gradual transition from a seller's to a buyer's market. Sales are now being made the hard way and many distributors believe substantial numbers of buyers have been "priced out of the market."

Significant is the steady slowdown in collections and the tightening of credit on the part of banks and finance companies. Both trends accelerated in the fourth quarter, apparently under impact of the November elections. Compared to a year ago, collections are now called only "fair." Distributors reported that pre-election optimism has given way to uncertainty and a "wait and see" policy.

Dealers Prosper Generally

A review of conditions last year showed distributors prospering generally, but with a better sales record in 1947 when an estimated one billion dollars worth of equipment was sold. It was emphasized that while total expenditures for new construction exceeded $17,000,000,000 in 1948, or an increase of twenty-six per cent, distributors' sales showed a much smaller increase.

Pressure is expected for more trade-ins and more rental purchase options this year. Most distributors estimate the number of trade-ins are up 50 per cent over a year ago. Increases range from 25 to 100 per cent, varying by area and dealer. Buyers, it was said, are asking excessive allowances on old equipment, much of which was purchased second-hand at inflated prices. Inventories are up from a year ago, but are better balanced.

Mr. Garlinghouse disclosed a mass movement in the industry to meet competition and sales resistance with stepped-up merchandising and sales promotion activities. Sales forces are being expanded and groomed for hard selling. Better service is in prospect from distributors and dealers. More attractive credit terms will be sought and time payment plans may be revived. Some distributors are placing a premium on management efficiency.

See 1949 as Good Year

The average distributor, the retiring president said, looks for a moderate decline in sales, but is confident that 1949 will be a good year. "There is enough public and private construction work in sight," he observed, "to assure him of a better than average year. In addition, it is hoped that highway construction and maintenance will be brought into line with existing needs."

A widespread demand for more labor-saving machinery is anticipated in 1949. The trend was evident through 1948 when contractors on both small and large operations sought to halt climbing construction costs resulting from low productivity and high wage rates. Contractors in most sections are as busy as a year ago, but severe weather conditions have forced the usual seasonal decline in the northerly areas.

Long-Range Advertising Stressed

H. R. Lunn, of Boardman Company, Oklahoma City, chairman of the A.E.D. advertising committee, stressed the necessity for careful, long-range advertising plans to achieve the most for each advertising dollar spent. He recommended setting up an annual advertising budget at the beginning of each year to permit planning so each advertising activity will be in proper relation to the overall program.

Mr. Lunn's formula for advertising is on the basis of the previous year's gross sales. A recent survey among distributors

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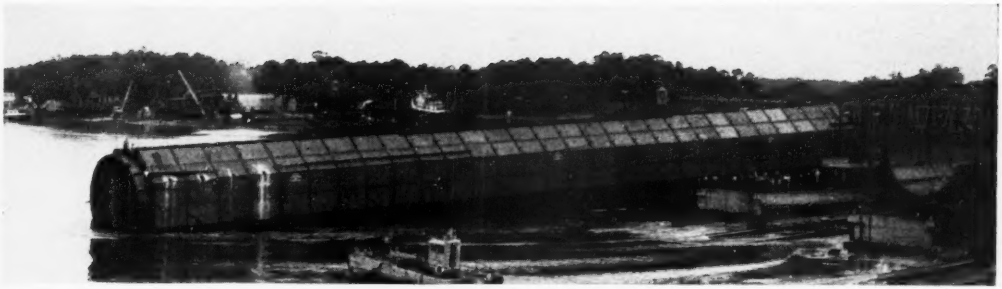
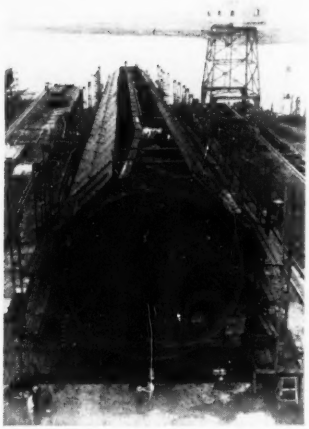


Above—Tunnel section 375 feet long and 35 feet in diameter slides into the water at Pascagoula, Miss., where Ingalls Shipbuilding Co. is constructing the shells for the multi-million vehicular tunnel under the Houston Ship Canal.

Texas Tunnel Sections Built in Mississippi Floated on Gulf to Site 400 Miles Away



Above—End view of one of the sections, showing the giant bulkhead.

THREE thousand tons of steel are being fabricated by Ingalls Shipbuilding Co. at Pascagoula, Miss., into the big sections which will be laid to rest on the bottom of the Houston Ship Channel as part of the multi-million-dollar Pasadena vehicular tunnel now being constructed across that man-made Texas stream by Merritt-Chapman & Scott Corp., according to plans prepared by the Mobile engineering firm of Palmer & Baker, Inc.

Utilizing the "know-how" and facilities of a shipyard established a decade ago to specialize in all-welded ships, Ingalls forces are building four tubular sections 375 feet long and 35 feet in diameter and two others known as transition sections 12 feet long and also 35 feet across. The sections are stitched together by electric welding, launched from ways in much the same manner as would be a ship and towed the 400 miles through the Gulf of Mexico to the site of the tunnel.

Each of the sections is made of all-welded steel with water-tight bulkheads, and diaphragms to be lined with concrete, part at the point of origin. The two transition tubes will connect the four 375-foot sections to the concrete arch shore sections. Altogether they will cost about $600,000. Construction is likened to that employed on the many vessels produced at Pascagoula. When the first section was launched a month or so ago it was warped to one of the adjacent outfitting docks where 300 tons of ballast concrete was poured inside the form plates.

Sunk at Pasadena

Upon arrival at Pasadena, the section was shifted into place above a dredged trench 85 feet below the water and sunk by its own weight, simultaneously being guided into position. After the four sections have been sunk to position, they will be joined together. The north and south sections will join with the transition sections. These are understood to be a new departure for such a project, eliminating the necessity for a cofferdam.

Finally, the big steel tubes will be lined with tile and a reinforced concrete foundation provided for the two-lane driveway. The major part of the concrete is being poured prior to the sinking operations. The reinforced concrete arches and open ramps will be constructed at both ends. Electrical facilities, telephone communication, fire protection and ventilation apparatus will be installed, as well as other essential equipment necessary for the function of a large underwater vehicular tunnel.

Parallels Ship Construction

Ingalls officials say that with exception of the machinery and other outfitting, the work to build the tunnel sections is much the same as that required for construction of a ship. Man-hours and materials in the mold loft approximated those for preparing templets and patterns for the hull of a large vessel. In the fabrication shop the diaphragms were cut, welded and

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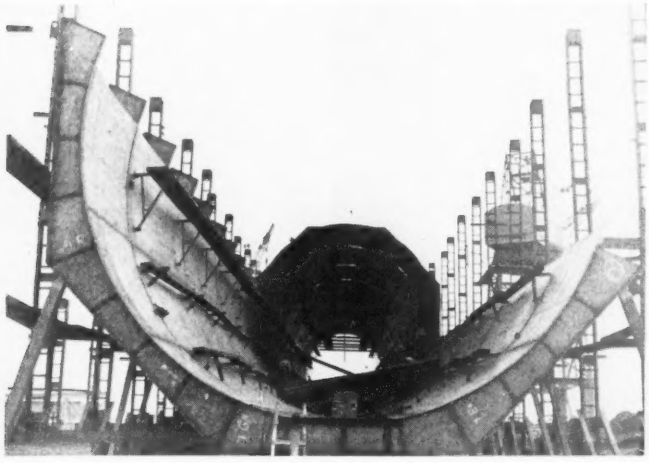
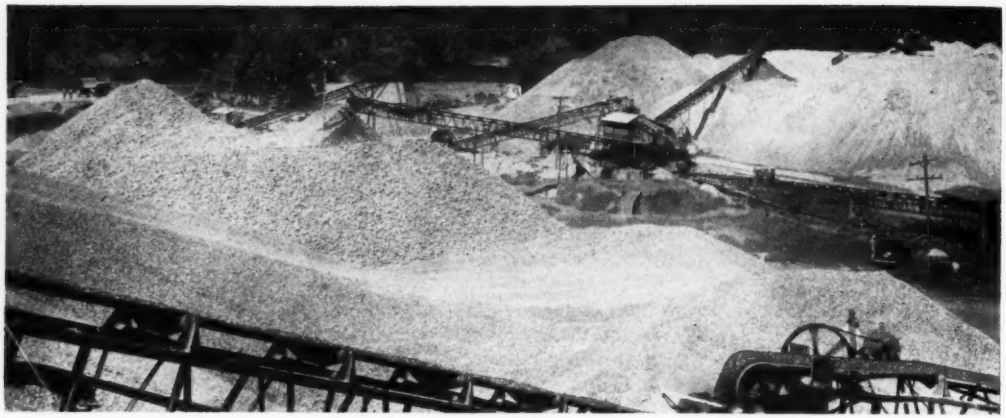


Left—Partially completed section. The bottom sub-assemblies are placed on the ways first, followed by the top half.



Above—Concrete aggregate producing plant. The 3 to 6-inch stock pile is at the left, the sand stock pile at the right and the washer and 3-inch screen in the center. The plant is located on the Little Missouri River nine miles downstream from the Narrows dam site.

Narrows Dam Pushed by Arundel-Dixon

THE Narrows dam and power plant is being constructed on the Little Missouri River, a tributary of the Ouachita, approximately seven miles northwest of Murfreesboro, Arkansas. Designed for the dual purposes of flood control and generation of electric power, the dam is of the concrete gravity type, 940 feet in length, 185 feet in height and will contain approximately 300,000 cu. yds. of concrete. The power plant will consist of two vertical-shaft, 8,500 KW generators with provisions being made for the later installation of the third unit.

Planning and construction are under the direction of Maj. Gen. R. W. Crawford, division engineer, Lower Mississippi Valley Division, Corps of Engineers, Vicksburg, Miss., and under the immediate supervision of Col. R. G. Lovett, district engineer, Vicksburg District, Corps of Engineers, also with headquarters at Vicksburg. J. C. Shewmake is resident engineer.

Construction is being performed under contract by the Arundel Corp. of Baltimore, Md., and L. E. Dixon Co. of San Gabriel, Calif. C. L. Coray is project manager and L. P. Sowles, engineer for the contractor.

Construction was started in April, 1947, and completion is scheduled early in 1950. Second stage diversion was made on October 9, 1948, and as of November 30 the structure was 34 per cent complete.

Important features of the contractor's construction plant are the concrete mixing and placing equipment. All concrete is mixed at a central mixing plant and placed in the dam by a traveling cableway. Facilities for cooling of aggregates and for ice making are available.

Below—First stage construction at Narrows Dam prior to second stage diversion. Downstream arm of diversion wall under way, right foreground.

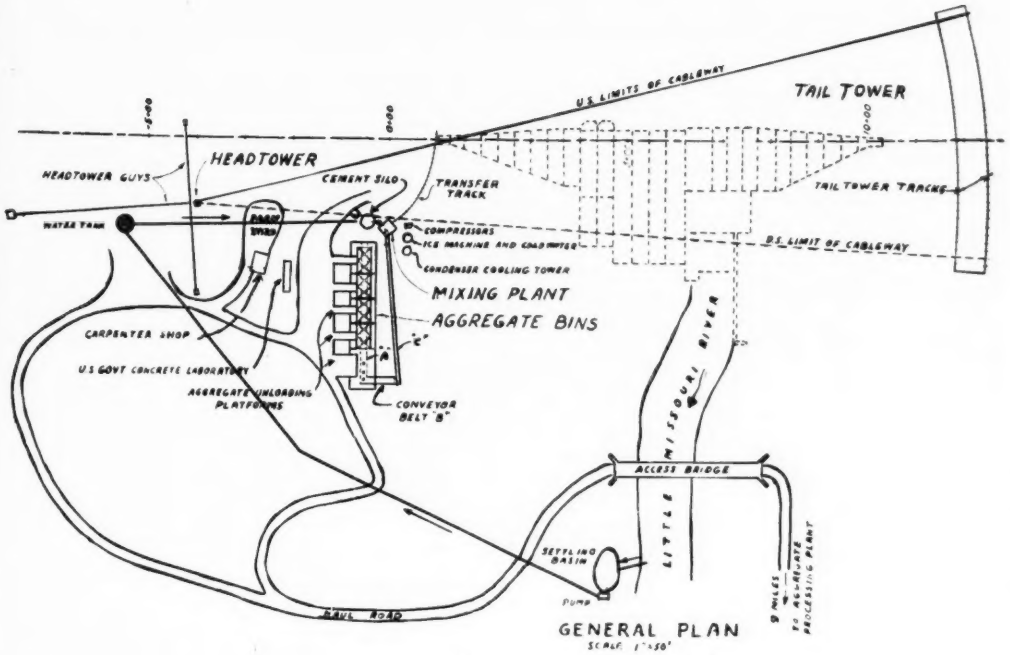
Cableway

The cableway is a radial type cableway with a span of 1,662 feet from head tower to tail tower and has a capacity of 20 tons at a conveying speed of 1,200 feet per minute and hoisting speed of 300 feet per minute. The main track cable is an American Steel and Wire Co. 3-inch locked coil cable with a breaking strength of 550 tons. It is set to an operating sag of 6.2 per cent of the span by means of an adjustable takeup near the tail tower. The cableway is supported by a 90-foot structural steel stationary head tower and a 110-foot traveling tail tower. The head tower is anchored in reinforced concrete back-stayed with two 3-inch locked coil cables and front and side stayed with 1-inch wire rope. This tower was fabricated from a tail tower previously used at Parker Dam.

T. V. A. Tail Tower

The traveling tail tower was originally used at Norris Dam by the Tennessee Valley Authority. It has a reinforced concrete counterweight of approximately 800,000 pounds. The tail tower travels along a 700-foot track-way and is powered by a 75-horsepower electric motor fed by means of a 2,300-volt conductor suspended from the power pole adjacent to the center of the track-way. The tail tower travel is controlled from the operator's station at the head tower by means of a control cable operated on a messenger.

The cableway hoist is located at the base of the head tower. The hoist operator has a station 15 feet above the base of the tower area so he can see the hoist, the control board and the cableway working area. The hoist is a 3-drum Lidgerwood hoist powered by a 200-horsepower induction type electric motor, controls



for which are located in the operator's station.

The cableway is used for placing concrete, moving and setting forms and reinforcing steel and for handling other materials. It will also be used for moving into place and settling the machinery and equipment in the dam and power plant.

Concrete Batching Plant

The concrete batching plant is one of the most modern plants built by C. S. Johnson Co., with a rated capacity of 100 cu. yds. per hr. and was purchased new for this project. The batching bin has a capacity of 400 cubic yards with five aggregate compartments and a cement bin of 500-barrel capacity. The batching plant is fully automatic, air operated, electrically controlled with moisture compensating devices for controlling water content of the concrete. An admixture reservoir for air entraining admixture and a flaked ice batcher are also installed. Beneath each bin there

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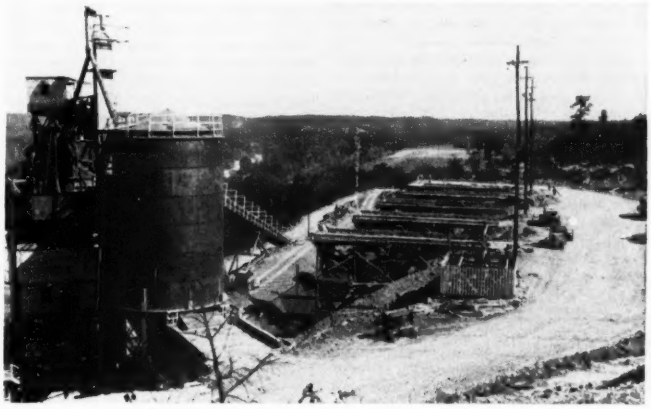
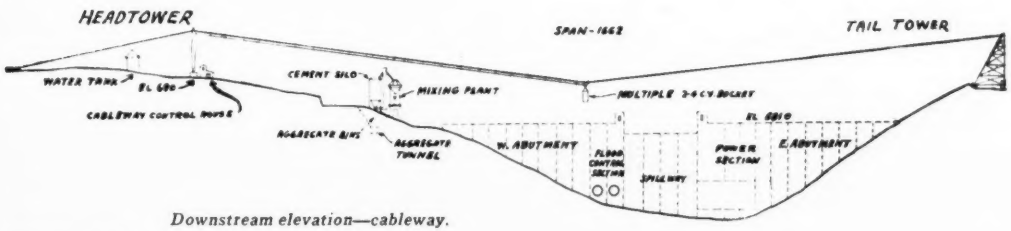
Below—General view of concrete plant, aggregate storage bins, unloading docks.





Downstream elevation—cableway.

A.S.C.E. Meeting Hears Lower Costs Forecast

Highways, Pollution Curbs, Atomic-Bacterial War, Air Transport, Among Subjects Discussed

A FIVE to ten per cent decrease in construction was forecast for 1949 by Melvin H. Baker, president of the National Gypsum Co., who during an address before the ninety-sixth annual meeting of the American Society of Civil Engineers, said this would result in stabilization and even reduction in building costs.

Use of modern methods, machines and materials, as well as a more plentiful supply of labor were cited by the Buffalo, N. Y. manufacturer of building materials, as factors which will cut into costs. Output of materials was estimated as the highest for any year since 1915 and the 117 per cent increase in the composite price of construction materials was attributed to the "record-breaking demand and the impact of postwar inflationary forces."

Despite general optimism that high output will lower price, Mr. Baker said he was impressed with the frequency with which industrial leaders warned that the determination to hold down prices would be defeated by demands for higher wages and that the outlook for adequate material supplies would be clouded by the uncertainty over the domestic and foreign political situation.

Citing ready-mixed cement, lightweight aggregates, pre-finished flooring and modular sizes in brick, tile, wood and metal sash and doors, wallboard and insulation, Mr. Baker stated that as materials become more abundant during 1949 the effect of these improvements would become more and more evident.

Many Subjects Covered

Many other authorities in the construction and engineering professions participated in the program, which covered such subjects as building costs, road building, water pollution, atomic and bacterial warfare, air transportation, airport terminals, neighborhood planning, harbor and channel maintenance, sewage treatment work, water supply and city planning.

Lower building costs through support of better construction engineering training by the construction industry were foreseen in several papers. "Construction engineering training for engineers in charge for owners of private and public construction would result in less working at cross purposes by contractors' and owners' engineers, would secure better work, and unquestionably lower costs," said Robert W. Briggs, consulting engineer of New Rochelle, New York.

In a symposium on "Construction Engineering Education—Present and Future," Mr. Briggs pointed out that on-the-job training, both of engineering students and teachers, has proven to be of inestimable value in increasing efficiency and economy.

"Economy and practicality of design may be expected of the designer who has a working knowledge of construction methods and costs," he said. "It, therefore, appears that construction engineering education should be encouraged and promoted in every possible way through cooperation of contractors and the engineering profession, as well as the engineering schools."

In another paper, Professor Morris I. Evinger of the University of Nebraska's Civil Engineering Department, decried "the present serious lack of suitable textbooks and other forms of teaching aids for construction courses," although he noted a marked increase in the number of construction engineering courses being offered by American colleges. He attributed the increase to the many influences arising from "increased costs of materials, equipment, labor, and supervisory forces, which have combined in many ways to prompt the construction industry, including contracting and engineering organizations, to seek larger numbers of young engineers for construction engineering training and service."

Construction Engineering Stressed

Asserting that construction engineering has emerged as a recognized branch of civil engineering, Professor Evinger defined it as "the art and science of bringing together men, materials, machines, money and management to solve the problems met in the design, production, distribution and fabrication of materials and articles into buildings and engineering constructions for the use of man." He said the increased number of construction engineering courses constitute a challenge to the entire construction industry for a larger and more effective measure of interest, cooperation and support.

"Forms of assistance which may be supplied by individuals or organizations in the construction industry to colleges of engineering in support of construction engineering education," he declared, "may be classified broadly in the following forms: Financial assistance, teaching services of lecturers, course subject matter and teaching aids, construction background and experience training, and reference publications such as manuals, technical reports, contract documents and exhibits. It is reasonably certain that if the initial forms of assistance provided prove to be educationally beneficial, further developments in cooperative undertakings between most of the construction agencies and organizations and the engineering colleges will follow an increasing measure and quality."

Contract System Favored

John C. Page, Denver, former Commissioner, Bureau of Reclamation, presented a third paper in the symposium. He favors major construction jobs by contract methods saying, "I stress this after experience in the Bureau of Reclamation over many years during which the Bureau policy has gone through a cycle: originally by contract methods, then force account, and third by contractors under contracts awarded to the low bidder based on unit prices bid and computed on estimated quantities carefully determined by the geologists on foundations and design engineers on all other items of the completed structure."

To illustrate his point that clear specifications and close cooperation between engineers for the contractor and the owner, both of whom should be well trained in construction fundamentals, make for lower construction costs, Mr. Page said:

"Specifications must include any special conditions or requirements not specifically required in the contract or the drawings. For example, the campsite for the contractor, and who secures the right to use facilities for the contractor's camp, for warehouse and working areas, water, means of transportation, light, power, messhouses, sleeping quarters, hospital services, police and guard personnel, schooling for the children of those in camp, recreation activities, etc., must be clearly stated. In isolated locations, it may involve facilities for stores, barber shops and all necessary services for employees and their families. The better service and the more attention to these matters and the more detailed manner it can be set down in the specifications, the less turmoil and turnover in personnel will be experienced. Also, better progress and cost will be realized if all of these things are planned in advance."

Major Road Problem

Improvement of "a very large mileage of roads built in earlier years," to alleviate traffic congestion and safety hazards is one of the major problems to be overcome in a program "of vital importance to the national economy and the welfare of the country." This was brought out by a speaker in a highway division technical session at which another speaker deplored the lack of trained highway engineers having "a coordinated and comprehensive viewpoint" and advocated special courses in the subject.

C. D. Curtiss, deputy commissioner, Public Roads Administration, Washington, D. C., and Prof. Ben H. Petty, of Purdue University's Highway Engineering Department, respectively, emphasized work remaining to be done in the field of road building and highway engineering education as part of a symposium on "Highway Engineering as a Career."

Other speakers were: Hal H. Hale, executive secretary, American Association of State Highway Officials, Washington, D. C., who presented the outlook for highway engineering graduates under the subtitle, "As a Professional Man"; Sam C.

(Continued on page 54)

The 1949 Highway Program

by
Charles M. Upham,

Engineer-Director
American Road Builders' Association
Washington

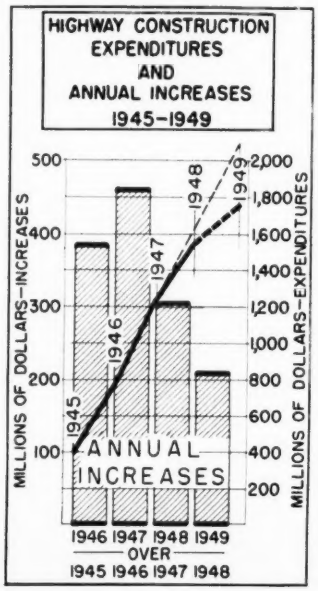
According to government estimates, highway construction expenditures will total $1,750,000,000 in 1949 which is an increase of $210,000,000 over the $1,540,000,000 spent in 1948. The estimated increase is considerably less than that of 1948 over 1947 which in turn was less than 1947 over 1946. It is evident that the uptrend which occurred after the war ended is not being maintained. Had the early postwar uptrend been maintained the total construction expenditure for 1949 would approximate $2,000,000,000.

That there is a levelling off tendency in the highway construction trend is confirmed by a survey of the 48 state highway departments concerning construction expenditures for 1947, 1948 and 1949. Returns from 36 states and the District of Columbia show that ten states will spend less money on construction in 1949 than they did in 1948, and the total expenditure for the 36 states will be only $70,000,000 more in 1949 than it was in 1948. This is comparable to an increase of $175,000,000 in 1948 over 1947 for the same states, and this increase was considerably less than that of 1947 over 1946.

Shortages Caused Delay

At the immediate close of the war the slow start of the highway construction program was attributed to the many war-caused shortages, many of which still exist. Highway departments were undermanned, many contractors were reluctant to bid and many projects were postponed due to high prices. Hence, the whole program lagged, and inability to take up federal aid funds as they became available made necessary the granting of an extension of time for the expending of funds authorized in 1944.

That the highway plant is operating on the economy of the prewar years is obvious. Highway construction is still on a piecemeal basis while the use of the highway is sky-rocketing. The 10,000,000 motor vehicle increase since the war will be augmented by 3,000,000 more next year and 3,000,000 more the year after that. The new era in highway transportation calls for a new era in highway construction. Unless this is done, highway transportation will lose ground with resulting loss to the nation's economic structure.



Larger Financing Needed

The new postwar economy calls for a highway building plant and a means of financing much larger than any heretofore developed in this country. There is need for publicizing the fact that economic changes have developed which demand new highway building policies on a huge scale. Surveys to determine the new demand are the only means of appraising the exact needs and arriving at definite conclusions.

First there must be a detailed study to determine the amount and type of needed improvement of the primary, secondary and urban highway systems in each state and second the amount of financing and the source of funds must be determined. The income from the principal source, highway user funds can be expected to continue to increase. Normally, federal aid funds are authorized every two years. Bond issues are necessary in some instances. These are the three principal sources of highway income available for the financing of the future highway program. The amount of financing and the source of funds will have to be adjusted to meet the needs created by the new economy.

Must Meet Challenge

The highway industry and profession must adjust itself to continued expansion until it has met the challenge of expanding automobile use, otherwise highway deficiencies will continue to accumulate and in time cause deterioration and ultimate stagnation in highway transportation.

Ten of the sixteen southern states and the District of Columbia spent $296,134,000 last year and this year will make an outlay of $319,960,000, according to a survey being prepared by D. R. Lamson, research engineer of the American Road Builders' Association. The figures for both years in the ten states are:

States	*1948*	*1949*
Alabama	$18,000,000	$14,000,000
Arkansas	11,000,000	11,000,000
Florida	29,500,000	25,000,000
Kentucky	12,000,000	20,000,000
Louisiana	19,682,000	31,660,000
Missouri	25,500,000	30,300,000
North Carolina	46,308,000	50,000,000
Texas	77,894,000	75,000,000
Virginia	33,238,000	35,000,000
West Viriginia	16,000,000	18,000,000
District of Columbia ..	7,012,000	10,000,000

Highway Spending to Rise This Year, With Operations on Economy Level of Before the War

These ten states and the District last year constructed 12,458 miles of roads, of which 296 miles were Portland cement concrete, 9,235 miles were bituminous mixes and treated types and 2,927 miles were other types. In 1949 they will build, according to estimates, 13,227 miles, 268 miles of which will be Portland cement concrete, 9,013 miles will be bituminous mixes and treated types and 3,846 miles of other types.

Mileages In South

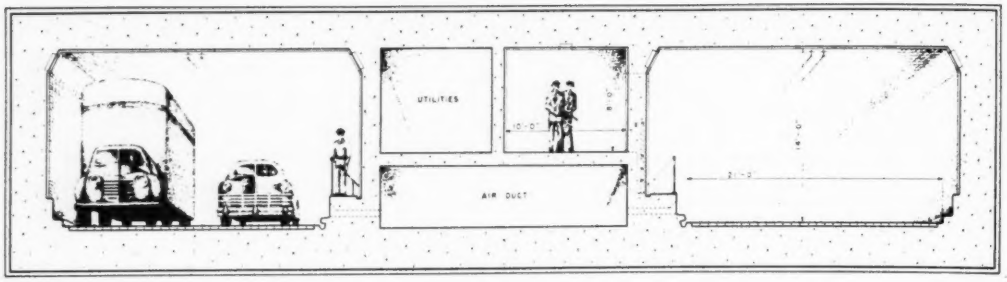
Mileages of the various types to be constructed this year as available by states and listed by Portland cement concrete, bituminous mixes and treated types and other types are: Alabama—0, 750, 0; Arkansas—0, 350, 0; Florida—5, 500, 0; Kentucky—50, 1,000, 100; Louisiana—85, 532, 104; Missouri—125, 312, 1,400; North Carolina—25, 1,600, 1,500; Texas—50, 3,500, 700; Virginia—20, 453, 22; District of Columbia—8, 16, 20.

Mileage figures of last year's work, by Portland cement concrete, bituminous mixes and treated types and other types by states, as available, are: Alabama—2, 778, 0; Arkansas—0, 330, 33; Florida—0, 617, 8; Kentucky—10, 891, 49; Louisiana—92, 355, 165; Missouri—101, 752, 700; North Carolina—28, 1,355, 1,200; Texas—26, 3,664, 679; Virginia—18, 435, 19; West Virginia—10, 40, 56; District of Columbia—9, 18, 18.

Southern Firms to Exhibit

What is described as the greatest display of home building materials, equipment and services in history is scheduled for Chicago February 20 to 24, when the National Association of Home Builders will hold its fifth annual convention and exposition. The exhibitors will number around 139 and will come from 24 states and the District of Columbia.

Among the southern firms who will be represented are Timber Engineering Co., Washington, D. C.; Gate City Sash & Door Co., Fort Lauderdale, and Ware Laboratories, Inc., Miami, Fla.; General Plywood Corp., Louisville, Ky.; The Crawford Corp., Baton Rouge, La.; American Stove Co., and International Oil Burner Co., both St. Louis; Boro-Wood Products Co., Inc., Bennettsville, S. C.; E. L. Bruce Co., and Hill Termite Control Systems, both Memphis, and Don-Bell, Inc., Bastrop, Texas, and Chicopee Manufacturing Co.



Above—Cross section of St. Claude Avenue tunnel proposed at New Orleans.

Palmer and Baker, Tunnel Experts

Mobile Firm Which Engineered South's First Tube Ten Years Ago, Now Has Four in Progress and in Prospect

PALMER and Baker, Inc., one of the nation's foremost authorities on subaqueous tunnel design and construction — that could be the description for the Mobile engineering firm responsible for design and construction of the noted Bankhead tunnel at the Alabama seaport, but whose accomplishments reach out into many other fields of engineering.

Wayne F. Palmer and Robert R. Baker, who organized the firm seven years ago, merged the engineering knowledge and experience of the United States with that of the British Empire, for the one is a graduate of Dartmouth College and was a member of the first reserve officers' class at the United States Naval Academy and the other is an alumnus of the University of London and designed and participated in erection of steel structures in many distant parts of the world.

Top Flight Engineers Added

Recent heavy demands for its services resulted in augmenting the staff by addition of one of the United States Navy's topflight engineer corps officers, Rear Admiral William H. Smith, who retired after thirty years of active duty to become, as the Navy announcement put it, "chief engineer with the firm of Palmer and Baker, Inc., consulting engineers in Mobile, Ala." and to serve in that capacity as consulting engineer on construction of tunnels in Houston and Galveston, New Orleans, and Fort Lauderdale, Fla.

Staff Further Enlarged

The staff was further enlarged to include other engineers with wide experience and important talent. One is Oscar Mulford, an outstanding tunnel construction engineer whose long experience well qualifies him to be in charge of all field inspection. He is chief inspector of all construction work. Col. Paul Brewer, former chief of the Indiana highway planning survey, is an authority on traffic problems. John Bayless, Columbus, Ohio expert in soil mechanics is continuing in that field for Palmer and Baker, as well as director of field explorations. Robert Griffith fills the responsible position, for this type of engineering, of geologist.

Mr. Palmer's career dates back to 1917, when as a new graduate he rose from ensign to lieutenant to assume charge of the submarine mine experimental laboratory at the Naval Gun Factory, Washington. While there he received several letters of commendation from the Secretary of the Navy. For ten years from 1922 he was in charge of the Palmer Steel Co., Springfield, Mass., and in charge of design, fabrication and erection of over 1200 buildings and 250 bridges.

His next move was into a partnership of engineering and financial consultants, where he carried out numerous housing, realty financial and traffic surveys. From 1938 to 1941 he was vice president of Wilberding and Palmer and was in complete charge of financing, designing and constructing the Bankhead tunnel at Mobile. Proudly but modestly, he points to the niche this project occupies in engineering history, emphasizing its comparative low cost and the success it has attained in toll operation.

Palmer and Baker Formed

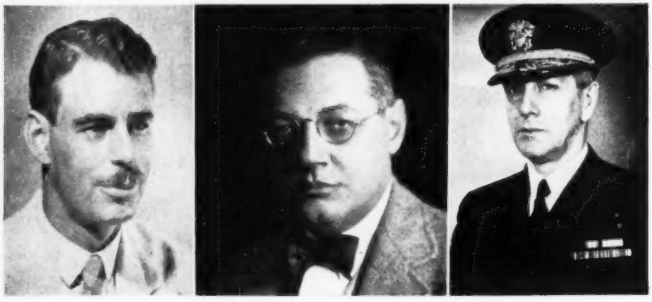
Palmer and Baker, Inc., succeeded Wilberding and Palmer in 1941. The new firm has been consulting engineer for Galveston County on the Bolivar Roads tunnel, it continues as consulting engineer on operation of the Bankhead tube, and also serves as consultant on the vehicular tunnel, now under construction, under the Houston ship channel at Pasadena, as well as on a four lane tunnel planned under the Inner Navigation canal at New Orleans and for two tunnels 1500 feet long at Fort Lauderdale, Fla., construction of which has just been authorized.

Associated with Mr. Palmer on these and other important undertakings has been Robert R. Baker, who prior to the recent reorganization served as chief engineer and is now vice president with the responsibility of supervising all phases of engineering. Upon receiving his civil engineer degree in London, Mr. Baker served articles of indenture with several English concerns and then launched on a career of steel structure design that took him to Africa and India.

Telephone Building Engineer

His first connection in the United States was as building engineer with the New England Telephone and Telegraph Co., where he was in charge of a five million dollar building program. Next he moved to Florida as chief engineer for the firm that designed and constructed the Fort Pierce harbor, the Indian River refrigeration terminal and several bridges. Subse-

Below—Wayne F. Palmer, head of the Mobile engineering firm of Palmer and Baker, Inc., with Robert R. Baker, vice president, left, and Rear Admiral William H. Smith, U. S. Navy, retired, chief engineer, at right.



quently, he worked as project engineer on the Overseas Highway and assistant to the chief engineer on the Mobile tunnel.

Admiral Smith's Career

Admiral Smith was born in Boston, graduated from the Massachusetts Institute of Technology and entered the civil engineer corps of the Navy in 1917. To get his appointment, he competed with about 700 other applicants and was one of the 25 finally selected, being commissioned lieutenant junior grade. Three of the permanent rear admirals in the Corps at the time of his retirement were among the twenty-five chosen as the result of the 1917 examination. Another, Admiral Ben Morcell recently retired to become chairman of the Board of the Jones & Laughlin Steel Company.

Admiral Smith rose steadily. One year after entering the Navy he was full lieutenant. In 1925 he became lieutenant commander; in 1935, commander; in 1941, captain and in 1943, rear admiral, each time being one of the youngest men to hold the rank in the naval service. His duties took him to many parts of the globe—London, Africa, Pearl Harbor, Midway, Kwajalein, Eniwetok, Guam, Saipan, Tinian, Iwo Jima and Paulau. In fact, his later travels follow closely the advances of the great American naval achievements in the recent war.

Temporarily quartered in London during the pre-invasion and post invasion period, he made three trips to Normandy beachhead, later transferring his activities into Africa and the Pacific theatres. His was an active part in planning for postwar development of Guam as a major base. He was a leader in design of the famous ARD-1, the experimental prototype of the mobile sea-going floating dry docks used during the war and was in charge of designing the ARD-3, the mammoth size of which at the time of its construction could accommodate any naval vessel afloat.

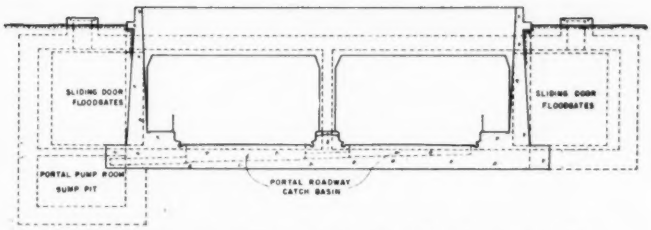
Tunnel Work Started

Mr. Palmer made his initial appearance in the tunnel field when in 1938 he left Washington to work on plans for the Bankhead crossing under the Mobile River. On that project seven octagonal steel tubes 298 feet long were fabricated and launched from ways of the nearby Alabama Dry Dock & Shipbuilding Co., each in turn being sunk in a previously dug trench on the river bottom.

Two sections were made up of two steel shells, the smaller inside being 30 feet in diameter and reinforced on the outside by vertical diaphragms placed at 12-foot intervals. Diameter of the outer shell was 34 feet between parallel faces. Tremie concrete was placed in the intervening space. The tube was lined with 18 inches of concrete. Cut and cover box sections were constructed at each end to connect Government Street, Mobile, with Blakely Island.

Texas Tube Under Way

Since the Mobile tunnel took its place with similar projects in the New York area, Boston, Detroit and in California, two similar subaqueous crossings have been started at other southern cities and others are now awaiting completion of final plans and specifications. The $7,500,000 project at Pasadena, Texas, is now under construction with completion estimated in about 14 months. Steel tubes are now being shipped from Pascagoula, Miss. by the Ingalls Shipbuilding Corp.



Above—Section of a twin tunnel planned at Fort Lauderdale, Fla.

Length of the tubular sections are 375 feet each. They are being towed along the inland waterway to the site of the work on the Houston ship channel, there to be sunk in a procedure similar to that used on the Mobile job. The original plan was to make these sections 500 feet long, but length of the locks at New Orleans limited them to the shorter dimension. Financed entirely by ad valorem tax bonds the project will be free. The 2,936-foot tunnel will dip down at a six per cent grade, straighten out 45 feet under the channel and then rise on a similar angle to the other shore. An air duct will occupy the lower third of the tunnel for practically its entire length. A ventilation building will be located at one end and a pump room will keep the mid-channel sump pit clear of water.

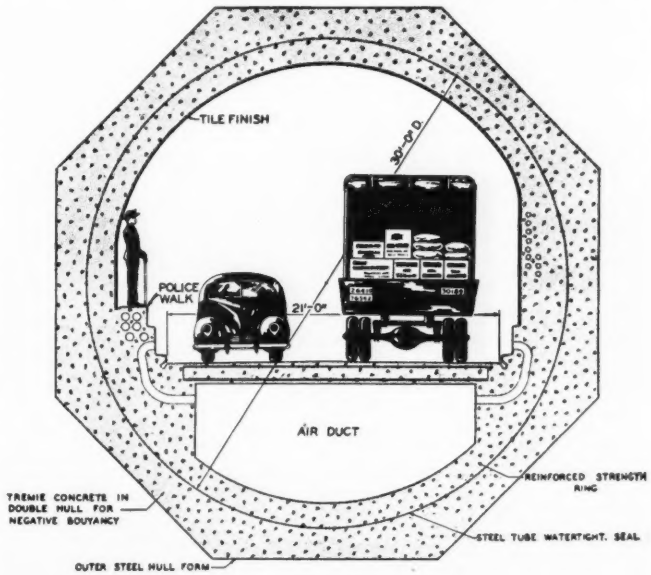
Merritt-Chapman & Scott Job

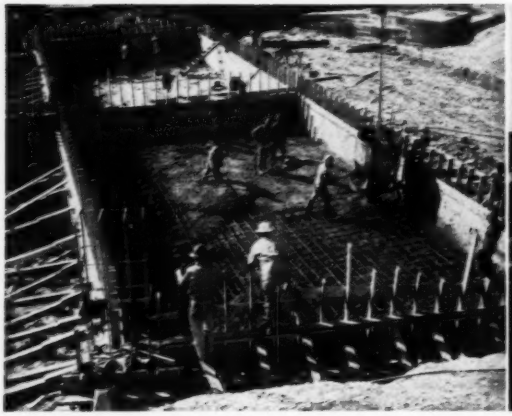
Actual construction is being done by Merritt-Chapman and Scott Corp., of New York, the principal contractor. Pfeiffer Electric Co., of LaPorte, Texas, is the electrical contractor, with Westinghouse and Sturdevant fans being installed by the Farnsworth Company of Houston and New Orleans.

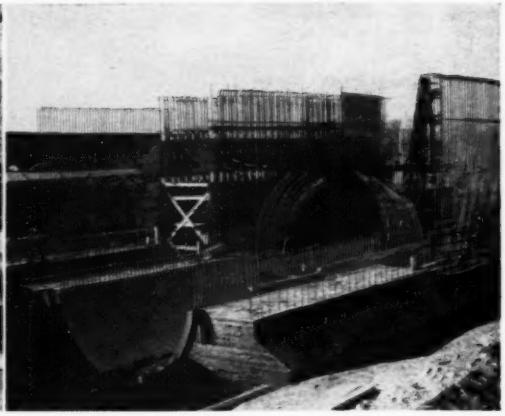
The Galveston tunnel is part of an under-over water crossing to cost $17,000,000. It will connect Galveston Island, on which the City of Galveston is located, and the Texas mainland across Bolivar Roads. Starting from a point near the Fort Point Light on the island, the tunnel will take a route under the existing ship channel, rise to the surface a little beyond the midway point and continue as a

(Continued on page 60)

Below—Cross section of the tube of the under-over water crossing planned to connect Galveston Island with the Texas mainland. Bids have already been received for this project, which would be the second Palmer and Baker tunnel job in Texas. Construction is now under way on the $7,500,000 Pasadena subaqueous crossing of the Houston ship channel.







$18,500,000 Dam Under Way at San Angelo

Left—Col. B. L. Robinson, district engineer at Galveston, and J. R. Simpson, San Angelo resident engineer.

AN $18,500,000 dam and reservoir is being constructed on the North Concho River near San Angelo, Texas, under supervision of the Galveston district of the Corps of Engineers headed by Col. B. L. Robinson.

The project was started in May of 1947, when Fuller Construction Co. began a portion of the earth embankment under a $366,750 contract. Hughes Construction Co. has since built another part of the earth dam, completing work on its $563,500 contract over five months ahead of schedule.

Under construction at present are the concrete outlet works, which will require about two years for completion. The $1,500,000 contract held by Nolan Brothers Construction Co., of Minneapolis, Minn., covers construction of a gated intake structure, two 18-foot diameter discharge conduits and a stilling basin.

As described by H. R. Norman, chief of the engineering division of the Galveston office, the earth fill was placed in approximately 1,000-foot sections with a differential in height of approximately 20 feet. Temporary side ramps were built to permit passage of empty hauling units, while loaded equipment was hauled up the end of the fill.

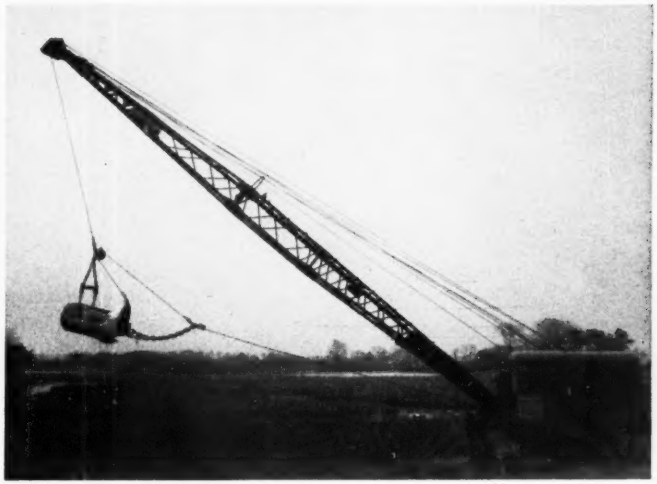
Uniform density of the earthen dam extending to the finished slopes of the embankment was obtained by placing the fill slightly beyond the finished neat lines. After completion to project grade, the side

(Continued on page 49)

Top of Page—Left—Concrete outlet works of the $18,500,000 San Angelo dam and reservoir project now under construction near San Angelo, Texas. Shown is the foundation for the intake structure which when completed will be 146 feet in height. Right—A view of the outlet works, showing the two 18-foot diameter discharge conduits and a stilling basin. Contractors are placing 36,200 cubic yards of concrete.

Left — Aerial view of the completed part of the San Angelo project. Temporary ramps for passage of construction equipment will be removed. The dam will be approximately 37,540 feet long and 128 feet high and will contain 18,000,000 cubic yards of earth fill.

Right—Dragline operated by forces of Nello L. Teer Co., of Durham, N. C., scoops into marshy land at the west approach to the proposed $37,500,000 bridge across the Chesapeake Bay.



Ceremonies Mark Beginning of $37,500,000 Maryland Span

DECADES of discussion about a bridge connecting the divided shores of Maryland crystallized into definite action last month when Gov. William Preston Lane instructed Nello L. Teer, Durham, N. C., contractor, and C. J. Langenfelder & Son, Inc., of Baltimore, to proceed with construction of the approaches to the $37,500,000 project, which upon completion will cross a five-mile width of the Chesapeake Bay.

Stressing the formal ceremonies, which were held at the west approach near one of the terminals of the ferry route the span will supplant, as "historic," Maryland's Chief Executive said, "I direct Mr. Teer and Mr. Langenfelder to formally start construction of the Chesapeake Bay Bridge" and almost immediately a Lorain dragline several hundred feet away made a few token scoops into the marshy land where the west approach will lead to the new bridge.

Practically the entire Maryland Legislature attended the short formalities and heard Governor Lane point out that the project will be built without expenditure of a single dollar of public funds. Bridge revenue bonds have been sold through the Baltimore banking house of Alexander Brown & Sons to finance the project. Robert M. Reindollar, chairman of the Maryland State Road Commission, explained the features of the five-mile span.

Participating in the program were: Mayor Thomas D'Alesandro of Baltimore, Mayor William U. McCready of Annapolis, Maryland's capital, and Rear Admiral James L. Holloway, Jr., superintendent of the United States Naval Academy, and neighboring Delaware's governor-elect, Elbert N. Carvel.

Also among those present on the platform were members of the Maryland State Roads Commission, William L. Childs, chief engineer, and Herschel Allen, head of J. E. Greiner Co., Baltimore, consulting engineers for the project. Approximately 500 people attended the ceremonies.

The Teer organization will do the west approach work at the $197,397 price submitted by the low bidder, who failed to post bond. A similar arrangement was made with the Langenfelder firm. Cost of the other approach on what is locally called the Eastern Shore will be $224,964. Quantities and unit prices on each submitted by the low bidder for the two projects are:

East Approach—Clearing and grubbing, lump sum, $9,200; salvaged topsoil, 10,000 cu. yds., $.50; Class 1 excavation, 55,000 cu. yds., $.60; Class 2 excavation, 3,000 cu. yds., $2.00; Class 5 excavation, 7,500 cu. yds., $.75; borrow excavation, 169,000 cu. yds., $.85; tamped fill, 2,000 cu. yds., $1.50; placing stock-piled topsoil, 72,000 sq. yds., $.20; seeding and mulching slopes, 22,000 sq. yds., $.16; seeding islands, 50,000 sq. yds., $.10; soil bituminous road mix, 10,000 sq. yds., $.27; bituminous material, 25,000 gals., $.15.

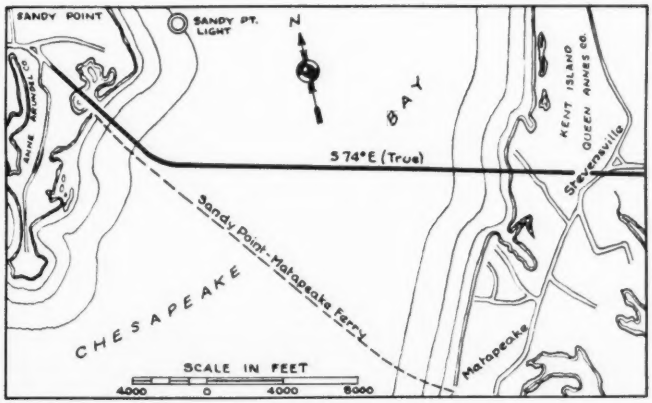
Also sand for seal coat, 110 cu. yds.,

(Continued on page 53)

Below—Gov. William Preston Lane at the controls of the big dragline.

Lauver

Below—Contracts have been let to Nello L. Teer Co., of Durham, N. C., for the west approach at Sandy Point and to C. J. Langenfelder & Son, Inc., of Baltimore, Md., for the east approach near Stevensonville.



Above—Improvements on the Missouri Pacific Lines this year will include $4,596,000 for new steel rail and track accessories. Workmen above are using track gauges to assure perfect alignment as the new rails are spiked.

Missouri Pacific to Spend $13,147,010 in 1949

MISSOURI Pacific Lines will spend $13,147,010 for system-wide improvements during 1949 under an authorization by Judge George H. Moore, of the United States District Court at St. Louis. Of the total, $2,342,340 will be for improvements on the Gulf Coast Lines, $1,590,170 for work on the International-Great Northern route and $9,214,500 on Missouri Pacific's northern and western lines.

Principal items in the betterment budget, in addition to the $4,596,830 for new steel rail and track accessories, an expenditure which had previously been sanctioned, include $1,488,180 for additional yard tracks, sidings and industry tracks; $1,345,640 for bridges, trestles and culverts; $957,700 for changes of grade and alignment; $763,400 for signals and interlocking plants; $678,880 for freight and passenger stations, and $453,200 for such work as shop buildings and engine houses.

New rail to be purchased will be of two weights: 4,550 tons of 132-pound to the yard for high-speed service lines and 43,310 tons of 115-pound section. This will replace lighter weight rail that has been in main line service for varying periods of years, the substitution being made because of heavier loading of freight cars and generally higher speeds in all train operations.

The 1949 program calls for 168.9 miles to be laid on the northern lines of the Missouri Pacific system and 61 miles on the Texas lines. Old rail to be replaced by the new will find its way into the secondary main routes, again replacing lighter-weight rail which in general will be sold to steel mills as scrap metal.

The 229.9 miles of new rail to be laid is a continuation of a system-wide track improvement. The 47,860 net tons of steel has been estimated to cost $3,296,628 and an additional $2,272,000 would be expended for other track material such as tie plates, rail anchors, spikes, angle bars, frogs, switches, guard rail, joints necessary for the installation.

One stretch of Missouri Pacific route to be improved will be the eastern division between St. Louis and Jefferson City. Fourteen and one-half miles of the heavy rail section will be installed. It will replace the 110-pound rail at various locations. Five miles will be laid at various points on the Arkansas division between Poplar Bluff and Texarkana, also replacing the lighter section.

The 115-pound rail will go into 210.4 miles of track all over the system. On the Missouri division, between Poplar Bluff and Dexter, it is proposed to replace 25.7 miles of 90 to 110-pound rail with the new 115-pound. On the Eastern division west of Jefferson City, Mo., 51.6 miles of new 115-pound rail will supplant used 85 and

Below—Burro crane lifts itself from the track by its own bootstraps to allow regularly scheduled trains to proceed on their way.

90-pound rail. The Central Kansas division will get 6.0 miles and the Colorado division 49.5 miles of the new 115-pound rail, while a 16.6-mile stretch of track between Osawatomie, Kans., and Little Rock, Ark., will have the new 115-pound rail substituted for lighter-weight 90-pound rail.

South of Houston, Tex., three stretches of track totaling 30.5 miles extending toward the Rio Grande Valley will have present rail replaced with the new 115-pound steel, the longest of these jobs being the 22.1 miles between Sinton and Woodsboro, Tex. On the Longview subdivision, at Palestine and at Longview, Texas, 5.2 miles of 115-pound will be substituted for 90-pound type. Between San Marcos and Hunter, 6.2 miles of 115-pound rail will go in, and on the Trinity subdivision, Dodge to New Waverly, Texas, 19.1 miles of the 115-pound rail.

Construction work on freight yards, extension of yard tracks, miscellaneous siding extensions, etc., will require the expenditure of $594,000 of the 1949 total set aside for the northern lines, and $482,950 for such improvements on the Gulf Coast Line properties, while another $411,230 will be expended on the I-GN.

The $1,345,640 allocated to bridges, trestles and culverts is divided between the railroad's northern properties' share of $819,100, and the Texas-Louisiana lines' $526,540. The major portion of this class of work involves the replacement of many existing timber structures with concrete construction.

Changes in grade and alignment, slated to require $957,700 for 1949, are principally on the railroad's Missouri division in the vicinity of Gad's Hill, some 111 miles south of St. Louis, where a new main track is being constructed to reduce the curvature and grades inherent in the existing track. Other projects are at Wellington, Mo., on the eastern division, at O'Brien, Kans., on the Central Kansas-Colorado divisions, and a track and bridge raising job at Fort Crook, Nebr.

Largest single project in the $763,400 authorization for signal work is the centralized traffic control system to be installed between Middlebrook, Mo., 83 miles south of St. Louis, and Mill Spring on some 51 miles of mainline track to Texas and the southwest. This project is estimated to cost $362,000. Running a close second is the $204,000 automatic block signal installation planned for 39 miles of the principal heavy-carrying freight line on the Illinois division between Bixby and Flinton. Other projects on the 1949 signal program scale downward from a $60,000 CTC plant at Fort Crook, Neb., (10 miles from Omaha), to a $1,300 track circuit job at Mt. Vernon, Ill.

Considerable modernization, enlarging and rearranging of freight and passenger station facilities is on the program for the year ahead, a total of $150,800 being allocated for such work on the northern lines of the railroad. On the Gulf Coast Lines $446,740 has been earmarked for these improvements, the largest single item of which is the proposed $350,000 lcl. freight house in the new Gulf Coast yards at Houston. More than $75,000 will be spent on I-GN station improvements.

Above—Machine loosens nuts from joints of old rails. Another machine has previously pulled the spikes that fasten the rails to the ties.

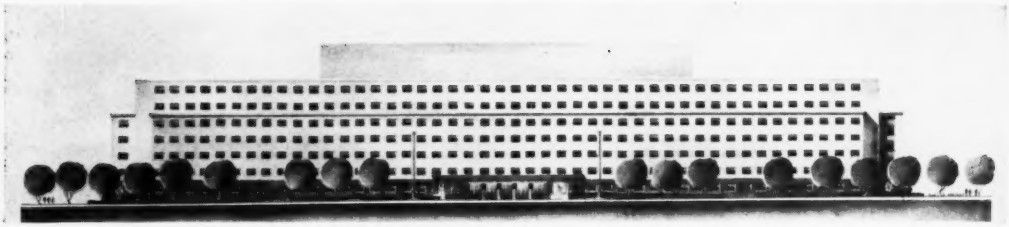
Continued expansion of the diesel servicing facilities at the company's Ewing Avenue shops in St. Louis is included in the 1949 program of $134,400 for the extension of repair tracks, the installation of a 100-ton drop-table for wheel changing, construction of another elevated "pit" track inside the diesel servicing building, the installation of heating facilities and miscellaneous affiliated work. At De Soto, Mo., where the company has a large new freight car building plant and a car repair shop, $25,000 worth of additional shop construction is to be done, while at the Sedalia, Mo., coach shops some $25,000 will also be spent. In Houston, construction of additional diesel servicing facilities has been assigned $125,000, while another $121,000 has been allocated for other needed expansion of the Houston general shop and terminal facilities.

The Court Order authorizing the 1949 improvement program expenditure of the

(Continued on page 49)

Above—P. F. Neff, chief executive officer of the Missouri Pacific Lines, under whom program is being pushed.

Below—Old rail pushed aside, crane lays rail as it moves along.



Above—John McShain, Inc., Philadelphia, Pa., submitted the low bid of $21,572,000 for erection of the General Accounting Office shown above. Westinghouse Electric Corp. was low on escalators and elevators, $1,384,999.

Washington Construction to Include Two Big New Government Buildings

Below—$18,000,000 Federal Courts building, for which bids will soon be asked.

TWO large government buildings are scheduled for early construction at Washington as the first important structures to be added to the Federal group in the Nation's Capital since the war. They are the General Accounting Office, for which John McShain, Inc., submitted a $21,572,000 bid, and the new Federal Courts Building proposed for erection in a few months on Constitution Avenue at Third Street.

A third monumental structure of smaller proportions is now under construction about a mile down Constitution Avenue at 18th Street. The $2,400,000 Pan-American Union administration building, this project is scheduled to be finished next May. To be faced with black-veined Georgia marble, it will have a frontage of 174 feet and a depth of 95 feet. A red tile Spanish-type roof will be used.

$22,500,000 Project

To shelter what is described as the world's greatest auditing and recording job, the General Accounting building will involve expenditures ranging up to the $22,500,000 set by Congress. About $2,000,000 has been spent for the site, excavation and preliminary planning when the project was abandoned early in the war. The Federal Court building will be one of the largest of its kind in the country and will house the District of Columbia courts up to the U. S. Court of Appeals. Its cost is estimated at $18,665,000.

Design of the accounting office will be along block lines without courts or wings, a type that was decided upon to obtain the maximum usable floor area without the limits of the 209,200-square-foot site and yet conform to the restriction on building heights in Washington and to provide the large open areas required to accommodate filing equipment and large-scale business machine operations. Floor area in the seven-story structure will total 1,894,000 square feet.

Supported on Pile Foundation

The building will be supported on a pile foundation. Its frame will be reinforced concrete with columns spaced on 25-foot centers and columns of flat slab design. Advantages of this type of construction, in addition to affording in running conduits and ducts, is that a maximum net height is possible from finish floor level to the ceilings. Below the seven stories will be a basement and sub-basement. A penthouse on the roof will house the mechanical equipment.

Exterior of the building will be shot-sawed buff limestone with a polished granite base and entrance motif. Interior finishes are being specified with an eye to minimizing maintenance and custodial service. All office spaces will be acoustically treated. Executive offices on the seventh floor will have special interior finishes. Most of the partitions except those for the permanent corridors will be movable. The air-conditioning system will operate both winter and summer. Due to the block design, this presented some unusual problems in mechanical engineering.

Office areas will have luminous indirect fluorescent lighting to provide 30-foot candles of general illumination. Similar lights are scheduled for the shops and business machine rooms. Recessed fluorescent lighting units of glazed and louvered panels flush with the ceiling and indirect fluorescent cove lighting will be installed in the entrance lobbies, elevator lobbies and main public corridors. Incandescent lighting will be used in the toilets and utility areas such as garage spaces. Windows will be aluminum and of an inswinging casement type.

Public entrances will be located at G and H streets to take advantage of present and proposed public transportation facilities. Each will be served by elevators and escalators. Vertical transportation will be by means of two main banks of elevators of six cars each. Each car will have a 5,000-pound capacity and 500-foot per minute speed. They will be self-leveling, signal operated with direct-drive gearless machines and high-speed, center-opening, power-operated doors.

Criss-Cross Escalators

Two flights of escalators will operate from the first to the fifth floor. Arranged in criss-cross layout, these will have a capacity of 8,000 persons an hour and a speed of 90 feet a minute. The installation will handle peak morning and afternoon loads. Two banks of two freight elevators will be installed. Each will have a capacity of 8,000 pounds and a speed of 250 feet a minute. They will be car-switch operated, horizontally divided, power-operated, self-leveling, with counterbalanced doors.

A truck entrance and loading platform at Fourth Street will facilitate the handling of the large volume of documents moving into and out of the building, with an additional truck entrance and loading platform for maintenance and repair activities located at the end of a ramp from H Street. Space for parking about 800 automobiles will be provided on two levels below the first floor. Loading dock doors and garage doors will be equipped to open automatically by remote control.

Judicial activities now scattered in eleven buildings will be concentrated in the new Federal Courts building, which is designed to provide six or seven court-

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Above—$36,900,000 Center Hill Dam on the Caney Fork River, in DeKalb County, Tennessee, has been placed in operation as a flood control project since the picture was taken. Construction on the power house will soon be initiated.

$36,900,000 Center Hill Dam Operating as Flood Control Aid

CENTER Hill Dam, a $36,900,000 project to impound 2,000,000-acre feet on the Caney Fork River in DeKalb County, Tennessee, is being built under supervision of Col. H. V. Canan, district engineer at Nashville. The structure combines both masonry and earth-fill design, with 1,382 feet of the former and 780 feet of the latter, or an overall length of 2,162 feet and a maximum height of 240 feet. It will contain 960,000 cubic yards of concrete.

Final pour in the closing monoliths was made in November and the project was approximately ninety-two per cent finished on January 1. It is now being operated for flood control purposes and was effective in reducing the crests on the lower Cumberland River during the early January rises, says J. N. Muschler of the Nashville engineer office.

Quarry Operations

The quarry for the project is situated in a cannon limestone formation and is only about 600 feet from the primary crusher. The overburden blanket is scant and is composed of residual silt with rock fragments and loose slabs. Rock is obtained by blasting a series of nine 200-foot holes, each of which is loaded with 1½ tons of dynamite. The material is then loaded by two shovels into self-powered dumpsters with capacities of six cubic yards each for delivery to the primary crusher.

Aggregate and Mixing Plant

The raw product from the quarry is dumped in a surge bin where it is introduced into a jaw-type primary crusher. This adjustable crusher is set to break rock to an eight inch maximum size.

From the crusher, rock is fed to a conveyor that transports it to the primary stock pile. This material is then conveyed to other crushers and screens until all desired gradations are secured and properly placed in stock piles. Production capacity of this plant is 250 tons per hour of total aggregate, including 80 tons per hour of stone sand.

From the base of the conical stock pile, the aggregate is carried by conveyor belt to the mixing plant, where there is a normal automatic control of the batch, including the various sizes of aggregate, the cement, water, and an air entraining agent. Three drum-type mixers are still being utilized in this plant since this was the only type available during the war period.

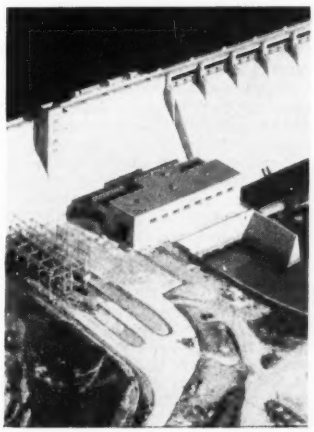
Concrete Placement

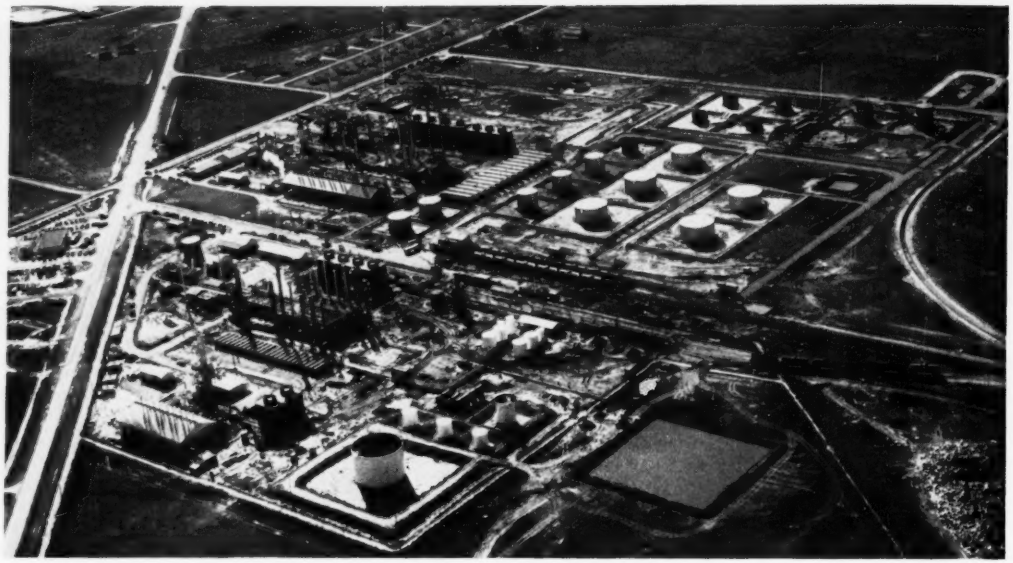
The concrete is moved in 2-yard buckets by truck from the base of the mixing plant to the base of the dam, where one of three whirler cranes is utilized to place it in proper location. High frequency vibrators are used to obtain a dense homogeneous mass.

Earth Embankment

The 778 foot embankment section and saddle dam were completed last year utilizing material from borrow pits with average haul of from 2,000 to 3,500 feet. Major construction equipment utilized in placing this embankment material included: One high capacity, plow type, Euclid loader, powered by a D-8 Caterpillar tractor; twenty 13-cubic yard bottom dump wagons; three 10-cubic yard end dump wagons; three 15-cubic yard and five 12-cubic yard carrying scrapers, each pulled by rubber tired tractors; one 2½-cubic yard and one ¾-yard shovel; two motor graders; three sheepsfoot rollers; seven bulldozers; four tractors; light plants and service equipment. The upstream face of the embankment section of the main dam and the saddle dam was riprapped to prevent erosion from wave action.

Below—The Dale Hollow powerhouse, also under the Nashville District Engineer, started operations December 20.





Above—New McCarthy chemical plant at Winnie, southwest of Beaumont, Texas.

McCarthy Constructs Plant To Make Petro Chemicals

THE new McCarthy Chemical Company plant at Winnie, about 25 miles southwest of Beaumont, Texas, is a tribute to the ingenuity and skill of those who were engaged in its development and construction, as well as to the foresight of Glenn McCarthy, who after reviewing studies first made in 1946 recognized the possibilities of establishing such a project.

Described as ideally located both from the viewpoint of raw materials and transportation facilities, the plant employs a process made available by Fomac Engineers, of Houston, who carried out development of the pilot plant and process design under supervision of J. E. Bludworth to lay the groundwork for what has grown into a great industrial enterprise.

Approximately 100,000,000 cubic feet of gas, which incidentally already has been processed in an adjacent absorption plant where conventional petroleum products such as gasoline, butane and propane have been removed, is treated in the new electronically controlled labyrinth of tanks, towers, pipes and valves to extract formaldehyde, acetaldehyde and methonal and then continue its journey as residue gas to be sold for fuel to industrial, commercial and domestic consumers.

Mechanical engineering for the project was done by the Houston architectural and engineering firm of Wyatt C. Hedrick, Inc. Oxygen plant process design is the work of Hydrocarbons Research, Inc., and mechanical design and construction was by Stacey-Dresser Engineering Co., of Cleveland, Ohio. Erection of the chemical plant proper was handled principally by Tellepsen Construction Co. and T. & R. Construction Co., both of Houston; V. G. Hinote Co., of Beaumont, and Industrial Painting and Sandblasters, Inc., of Texas City.

When the residue gas, which originates at McCarthy wells at Stowell and Jackson Pasture, enters the chemical plant it is converted to aldehydes and alcohols by means of a direct oxidation process. Oxygen is produced from air in a tonnage scale plant using a modified Linde-Frankl cycle low temperature plant. Use of oxygen minimizes delutients in the residue and thus permits its use as fuel in the distribution system of Jefferson Pipe Line Co.

Two concentrations of formaldehyde are obtained. Much of the methanol is reprocessed and converted to highly concentrated formaldehyde. Formaldehyde is shipped hot in insulated tank cars because as it cools, it tends to precipitate and solidify. Stainless or plastic-lined steel is used in all parts of the plant where the formaldehyde is made, piped, stored or shipped.

McCarthy Chemical Co. is an outgrowth of McCarthy Oil and Gas Corp., the latter the operator of an integrated system which is considered an excellent example of the conservation and ultimate application of natural gas. Glenn McCarthy, president of both the chemical and oil and gas companies, owns 17 corporations, including publishing, radio, and motion picture enterprises, and is currently erecting the Shamrock Hotel at Houston.

New Government Buildings Proposed for Capital

(Continued from page 38)

rooms on each of the three court floors. The courtrooms will be simple in design. Good sight lines, good acoustics and efficient arrangement were all considered. Prisoners' elevators and cells are so located that the movement of prisoners will be expeditious and safe. Jury rooms are to be immediately adjacent to the courtrooms they serve, so the jury can retire without passing through any uncontrolled space. Judges can reach any one of the several courtrooms without passing through any public corridor.

Seven District Courtrooms

On the first floor will be located the offices with which the public has the greatest contact—the clerk of the court, the United States Marshall, the probation office and the United States Commissioner. In addition to the seven district courtrooms with their judges' chambers, jury rooms, and witness rooms, the offices of the register of wills, commission on Mental Health and the Domestic Relations Commissioner will be on the second floor. Grand jury rooms, law library and offices of the United States Attorney and Assignment Commissioner will be on the third floor.

Seven District courtrooms, together with their various auxiliary spaces, a lawyers' room, press room, large lounge for jurors, small lounge for witnesses, auditors' offices, jury commissioner and court reporters' offices will be on the fourth floor. Connected with the jurors' lounge will be telephone booths, small dictation rooms and a message center where communications to jurors may be received.

The fifth floor will be devoted to the

(Continued on page 48)

Equipment and Material Makers' News

Dickey Marketing Plans

Officials of the W. S. Dickey Clay Manufacturing Co., vitrified clay sewer pipe makers, held a southeastern sales convention on January 3rd and 4th, with members of the Birmingham and Chattanooga plants taking part.

Among the subjects they discussed was the approaching end of the so-called "seller's market."

The company sold more clay pipe in 1948 than in all its 63-year history. Despite this fact, the Dickey men foresaw the day when supply must catch up with demand and laid plans for making the shift to a "buyer's market."

As part of these plans, they emphasized the use of a full program of advertising. To assist in this coming advertising program, they arranged to coordinate the gathering of photographs and data on installations of Dickey sewer pipe. Each participant spoke on assigned topics.

Among those attending were C. B. Beasley, vice president and manager of Dickey's Birmingham plant; D. M. Strickland and Wendell D. Anderson of the Manufacturers' Promotional Service; A. G. Brading, sales manager of Dickey's Chattanooga plant; and the following Dickey officials and sales representatives: J. C. Buchanan, Leland Buchanan, L. R. Campbell, F. M. Cook, Thomas Howard, F. J. McFarland, J. L. McGaw, Oliver Newton, L. H. Rounds, Nevin Trammell, and E. L. Winn.

Caterpillar D2 Tractor

Caterpillar Tractor Co., Peoria, Ill., has produced a new publication "Caterpillar Diesel D2 Tractor" to present the design features and range of applications of the company's 32-hp. track-type tractor. Profusely illustrated and graphic in content, the booklet portrays the engineering of the product, its manufacture and its application in a wide range of chores to which it is put by users. Copies of the publication may be obtained by writing for Form 11628.

New Speed Concrete Finish

Irvington Form & Tank Corp., Irvington, N. Y., maker of Atlas forms, has developed a new speed finish for exterior and interior concrete walls, newly poured or old. Described as permanent, uniform and protective, this finish gives a remarkably smooth coat. It is applied with a cork float. The exterior type, consisting of a bonding coat and a finishing coat gives a smooth, waterproof surface. This variety may also be used for interiors to meet special conditions. The regular interior finish, which requires but one application, is so smooth that paint may be applied directly to it, eliminating the necessity of plastering the wall.

Pittsburgh-Corning Moves

Home offices of the Pittsburgh Corning Corp. have been transferred to 307 Fourth Avenue, Pittsburgh, Pa. The corporate organization remains the same. Pittsburgh Corning was formed in 1937 by the Corning Glass Works and the Pittsburgh Plate Glass Co. It was capitalized on a 50-50 basis.

Rust Designs, Installs Bird High Voltage System

A new power plant and installation of high voltage electric generating and distribution equipment to replace the present plant has been begun for Bird & Son, Inc., at East Walpole, Mass., by the Rust Engineering Co., Pittsburgh, Pa.

This new electric system will give Bird & Son, a leading producer of asphalt roofings, sidings, floor coverings, and paper products, including shipping containers, and a modern generation and distribution system.

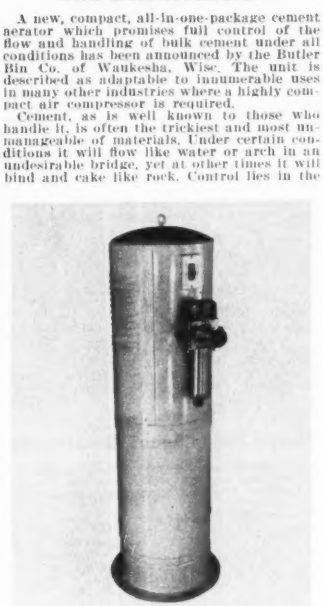
The new system will generate and distribute electric energy at 13,800 volts to unit substations throughout the plant where it will be stepped down to the required voltage. Rust engineers who designed the system expect the high initial voltage to show considerable savings in distribution losses. The use of lighter wires is expected to keep installation costs relatively low.

Present switching equipment will be modernized to provide protection against short circuits and overloads in the new electric distribution lines. The plant will be tied into the public utility system and will be operated in parallel.

New Cement Aerator

A new, compact, all-in-one-package cement aerator which promises full control of the flow and handling of bulk cement under all conditions has been announced by the Butler Bin Co. of Waukesha, Wisc. The unit is described as adaptable to innumerable uses in many other industries where a highly compact air compressor is required.

Cement, as is well known to those who handle it, is often the trickiest and most unmanageable of materials. Under certain conditions it will flow like water or arch in an undesirable bridge, yet at other times it will bind and cake like rock. Control lies in the measured application of compressed air under proper pressures at critical points in the handling system.



Butler Cement Aerator

The Butler Cement Aerator is a compact, inclosed compressor unit occupying little more space than a standing man. Complete controls direct air automatically under adjustable pressures to the air jet lines. An unusual feature is the dual pressure take-off that provides extra air for many other uses around the plant such as pumping tires, cleaning equipment or operating air cylinders. Two models of the Aerator are available with 60 gallon tanks, one with a displacement of 8.6 cu. ft., the other with displacement of 12 cu. ft.

Self-Propelled Lorain Cranes

Thew Shovel Co., Lorain, Ohio, has released a new 16-page bulletin entitled "Self-Propelled Cranes" which illustrates 48 of the various applications of self-propelled cranes for industrial material handling and construction operations.

Lorain self-propelled cranes are single-engine, one-man operated cranes, with four speeds in either direction. They travel at speeds up to 7 M. P. H. A selection of wide-track and standard width machines are offered in the self-propelled models. This new bulletin illustrates the field in which self-propelled machines are now serving.

Swan Added to Dixie Staff

Elmer W. Noxon, president of the Dixie Machinery Manufacturing Co., St. Louis, Mo., announces the addition to the staff of David P. Swan in the capacity of field engineer and to assist in general sales promotion. Formerly connected with the Gruendler Crusher and Pulverizer Co., Mr. Swan has an extensive background involving the crushing, grinding, pulverizing and shredding of raw materials. His varied experience covers the specialized adaptation of Grinding and Pulverizing equipment in the chemical process industries.

The Dixie concern manufactures Hammermills in various sizes and capacities, including the non-clog, moving breaker plate type, designed to successfully cope with the problems inherent in the reduction of wet, sticky materials.

Osgood-General Excavator Appoint W. S. Hawkins

The Osgood Company and The General Excavator Co. of Marion, Ohio, announce appointment of William S. Hawkins as division sales manager for Texas, Oklahoma, Kansas, Missouri, Iowa, and part of Nebraska.

Mr. Hawkins will make his headquarters at Topeka, Kans., and devote his time to sales and service of Osgood and General power shovels and material handling equipment, working closely with Osgood and General distributors in his division.

These distributors are: Stephens-Jones, Inc. of Des Moines and Sioux City, Iowa; Clem Fleury Equipment Co. of Cedar Rapids, Iowa; Hennessey-Forrestal Machinery Co. of St. Louis, Mo.; Martin Tractor Co., Inc., of Topeka, Kans.; Jack Spratt Road Machinery Co. of Wichita, Kans., and the G. A. Coffey Co. of Dallas, Tex.

Mr. Hawkins, who is 31 years old, joined General Excavator as a draftsman in the engineering department soon after leaving school. During the war he served in the European theatre as a technical sergeant in the Air Corps. Resuming duties with General Excavator, he came to the Osgood-General sales force in July of 1948.

New Foote Paver Boom

A new HighLift boom is available for both the Singlemix 34-E (single drum) and Duomix 34-E (double drum) MultiFoote Concrete Pavers. Controlled from the operator's platform, the boom can be held in any position above the ground with a vertical lift of 23 feet bucket clearance. This allows the paver to be used in a wide variety of work such as parapets, bridge abutments, retaining walls and footings and walls for general building construction.

The HighLift Boom will work flat and in many cases, says the maker, and permits working under steel structures where equipment with longer booms would find difficulty. Much false work can be eliminated and much time can be saved in handling concrete buggies up on structures. It is also said to make the problem of feeding a pumpcrete or loading dumptors a simple one.

Rex Warehouse at Atlanta

Chain Belt Co., of Milwaukee, has established a new Atlanta warehouse, at 878 Ashby Street, N.W., Atlanta, Ga. The Atlanta district office is also located at this address under direction of J. S. Moore, district manager. The new warehouse will be under the supervision of G. J. Schuelke formerly of the Milwaukee office.

The new Atlanta warehouse will serve the Southeast including North Carolina, South Carolina, Virginia, Georgia, Florida, and Alabama. Merchandise products of the Chain & Transmission Division, Baldwin-Duckworth Division and the Conveyor and Process Equipment Division will be stocked. These products include Rex and Baldwin-Rex Power Transmission and Conveyor Chains, Sprockets, Belt Idlers and allied power transmission and conveyor equipment. Twenty-four hour delivery service will be available to most parts of the territory served.

Counterstress Used to Balance Warpage Caused by Welds

Use of counterstress or prebending to balance warpage caused by welding has eliminated need for straightening of welded parts at the Frank G. Hough Co. of Libertyville, Ill., where special fixtures have been designed to make the greater portion of the work flat welding and careful positioning minimizes the necessity for vertical or overhead welds. These features, according to T. Seals, welding foreman, have increased production by expediting the welded construction of the tractors, shovels, front-end loaders, and other road-building and materials handling equipment produced by this company.

Twenty General Electric welding units, ranging from 300 to 500 amperes, are used by the 50 welders employed by the concern. Welding plays a part so important in the manufacture of the Hough apparatus that almost every component of their machines passes through the welding booth at some time before it reaches the assembly stage. The welded construction must be exceptionally strong because it has to withstand the heavy-duty work and severe handling.

(More on page 42)

Equipment and Material Makers' News

Marion Presents the 111-M All-Electric Shovel

Marion Power Shovel Co. of Marion, Ohio, announces addition of the Marion Type 111-M Ward-Leonard all-electric machine to its line of excavating equipment. The 111-M shovel is designed for heavy-duty service in the coal, quarry, metal mining and construction industries.

As a standard shovel, the machine is

Marion Type 111-M, All-Electric Ward-Leonard Machine

equipped with a 3½ cubic-yard dipper and 33-inch boom, while for coal loading service, the dipper capacity is 6 cubic yards. Marion presents the 111-M Ward-Leonard as a "sister" shovel of the 111-M diesel machine, which was introduced into the medium-size excavator class almost three years ago.

Outstanding distinguishing features of the Marion 111-M Ward-Leonard machine is the fact that all motions are electrically controlled. Control of the various motor speeds and direction of rotation is obtained by the use of the Ward-Leonard system of generator voltage control. The motor generator set on the 111-M Ward-Leonard consists of an induction motor direct connected to three direct current generators, and an exciter, all mounted on a shelf-supporting sub-base.

Other features claimed for the Marion 111-M Ward-Leonard machine include:

Simplified machinery design and construction; heat treated, machine cut gears, shafts of alloy steel; all-welded construction; "stiff leg" gantry; all-welded box section boom made from formed plates having rounded corners for greater strength; conveniently arranged and simply designed operating control equipment.

A.C. Motor Starters

The Allis-Chalmers line of alternating-current full voltage starters to meet the requirements of any type of motor drive is described in a new 12-page bulletin (14B7132) released by Allis-Chalmers Manufacturing Co., Milwaukee, Wisc. Construction features and uses of manual and magnetic across-the-line starters, across-the-line combination starters, reversing starters, and push-button control stations are all described and illustrated. According to the bulletin, two types of thermal relays are used to protect Allis-Chalmers starters from overload—melting alloy relays through size 3 and spiral bimetallic on sizes 4, 5, 6 and 7.

Keystone Enlarges Operations

Keystone Driller Co., Beaver Falls, Pa., manufacturers of blast hole, well drilling and heavy excavating machinery since 1882, announce formation of a new department to enlarge activity in the industrial and construction machinery field. Known as the equipment division, this department will be located in downtown Pittsburgh, at 419 Wood Street.

Robert H. Fox and Associates of Van Nuys, Calif., will direct the engineering and marketing. Mr. Fox, formerly with Six Wheels, Inc., has pioneered the application of rubber tires to heavy construction machinery since 1922.

Keystone's first offering will be a 15- to 25-ton capacity self-propelled one-man crane carriage or wagon on pneumatic tires for all makes of cranes. All retail sales will be through the Associated Equipment Distributor membership with few exceptions.

1949 Edition of Book on Timber Structure Design

The 1949 edition of "Typical Designs of Timber Structures," a reference for use of architects and engineers, has just been published by the Timber Engineering Co., 1319 18th Street, N. W., Washington 6, D. C., containing 88 new, typical designs and valuable technical data with illustrations, this 116-page book is said to be the most complete of its kind ever published.

Modern methods of timber construction using Teco timber connectors are well illustrated by sample designs for use by architects and engineers in preparing their own economical timber designs, and by typical on-the-job photographs showing designs of these types in use.

Coverage of many commonly encountered structural problems includes all types and spans of roof trusses as well as many special designs. Roof truss designs include trussed rafters, pitched trusses, Lank-Teco trusses, flat trusses, and bowstring trusses. Special designs include bridges, trestles, towers, hangars, grandstands and farm structures.

"Typical Designs of Timber Structures," priced at $1.0, will be distributed complimentary while the supply lasts to practicing architects and engineers who write for copy on their firm letterhead to Timber Engineering Company, 1319-18th St., N. W., Washington 6, D. C.

Plastic Helps Speed Construction

A new method of using plastic glass substitute has been devised by a New England contractor to speed winter construction. The Aberthaw Co. of Cambridge, Mass., is using Dobeckmun Sunfed plastic glazing as an outer shell over the scaffolding and fire escapes of a dormitory being erected at the Massachusetts Institute of Technology. The shell protects outside workers against wind and cold, while passing the sun's light and warmth. Aberthaw heats interiors to improve working conditions, so the shell also helps to cut down fuel costs by holding warmth inside. Constructed of individual frames, the shell can be dismantled and used on other construction jobs.

Rundle, Universal Merge

Merger of two of the country's pioneer manufacturers of kitchen and bathroom plumbing fixtures to form a single integrated named Universal-Rundle Corp., has been announced by W. Keith McAfee, board chairman of the newly formed corporation. The two merged companies are the Universal Sanitary Manufacturing Co. of New Castle, Pa., with divisions in Redlands, Calif., and Camden, N. J., and the Rundle Manufacturing Co. of Milwaukee, Wisc., with a subsidiary plant also at Camden, N. J. Headquarters of the new corporation will be at New Castle, Pa.

Universal, which employs 550 persons in its New Castle plant, 250 at Camden and 270 at Redlands, is the country's third largest producer of vitreous china lavatories and closet combinations. Rundle employs 600 persons in its Milwaukee plant and 350 at Camden and produces enameled cast iron kitchen and bathroom fixtures.

New Binanbatch Folder

The Binanbatch is described in a new leaflet issued by Winslow Government Standard Scale Works, 25th and Hawthorne, Terre Haute, Ind. Recommended for use on bridges and other jobs using mixers up to and including the 10S, 14S and 16S, the Winslow batcher can be hauled partly dismantled to the site of the work by truck, if railroad facilities are not available and a large batcher could not be set up economically.

The Binanbatch consists of either two or three storage bins with a weigh-hopper and batching scale suspended underneath on tracks so that the weigh-hopper may be loaded under each bin and discharge material into the mixer skip. Capacity of the bins is 23 tons; overall dimensions, adjustable height 11 feet, 11 feet 6 inches, or 12 feet; width, 7 feet 11 inches; length, 14 feet; dismantled dimensions for moving by truck are: Height 5 feet 6 inches; width 7 feet 11 inches; length 14 feet.

Scale equipment consists of a Winslow heavy duty, batching scale of 2,000 pounds total capacity, one tare beam for balancing the empty hopper and either two or three material beams graduated to 1,000 pounds by 2 pounds.

Gold Medal Tube Lox Described in New Scaffold Folder

Gold Medal Tube Lox scaffolds are described in a new leaflet published by the Patent Scaffolding Co., Inc., New York manufacturers with distributing offices in 45 cities of the United States and one in Hawaii. Used extensively in building construction and renovation, Tube Lox design uses four basic parts—interlocking steel tubes of various lengths, two types of couples and heavy-duty 6-inch casters.

Towers of Tube Lox may be erected for any type of overhead work from 6 to 60 feet and higher. Described by the maker as easy to erect, the towers are mounted on free-rolling casters, thus permitting the scaffold to be rolled to any point as the job progresses. Brakes on the casters hold the scaffold in place and prevent swiveling or rolling. The tubing is 2 inches in diameter, with 2½-inch tubes available for extra heavy duty installations.

Main advantages cited by the manufacturer are safety, adjustability, simplicity, appearance, elimination of fire hazard, as well as a complete stock to assure prompt delivery.

Worthington Pump Handling Ransome Machinery

Worthington Pump and Machinery Corp., Harrison, N. J., announces that the manufacturing and distributing activities of its subsidiary, Ransome Machinery Co., are being conducted by the parent Corporation. Manufacturing operations for the lines previously manufactured by Ransome will be carried on at Worthington's Dunellen Works, Dunellen, N. J., the same location formerly used by Ransome Machinery Co. Sales activities will be directed from Worthington's executive offices at Harrison, N. J., through the Ransome Sales Division located at the Dunellen Works.

New Portable Pump Unit

A new portable pump unit has just been announced by Eco Engineering Company, 12 New York Avenue, Newark 1, N. J., manufacturers of gearless pumps.

This new unit consists of an Eco Gearless Pump, Model PP-2, powered by a 1½ h.p., single cylinder, four cycle, air-cooled gasoline engine. It is designed for use on boats and docks, in boatyards, on farms, around homes, in plants, or wherever a portable type emergency pump is required.

The new unit has many very practical applications. In boatyards its portability permits it to be carried from one boat to another, for pumping bilge, for washing hulls on the railway, for washing decks and upper structures of boats. It has also proved to be an aid in sinking piling around docks, says the maker.

Suspended Ceiling Catalog

A new 1949 edition of Catalog N-1 on suspended ceiling construction describes a new, special Zipper splice lock clip which holds adjoining ends of nailing channels in a rigid position. Another improvement is the innovation of the metal end lock strip for holding adjoining sheets of backerboards securely in place. The catalog illustrates how Nailock installations for acoustical ceilings are installed in three operations. It is available from the Nailock Steel Division, Sanymetal Products Co., Inc., 1705 Urbana Road, Cleveland 12, Ohio.

Skinner Completes 50 Years

A fifty-year span of unique service has just been completed by the M. B. Skinner Co. of South Bend, Ind. During this period Skinner has filled an unusual position in American industry supplying specialized pipe repair clamps and allied products which have made it possible for water, gas and petroleum companies, power plants and others to maintain practically an uninterrupted flow through mains and pipe lines.

Originally established in Chicago, Skinner has operated in South Bend since 1928 in a plant setting which is likewise unique in American industry. Every Skinner employe takes pride in the appearance of the plant grounds which resemble a private estate rather than a factory. Skinner was a pioneer in profit-sharing—beginning 1934—with a record of no strikes or work stoppages since the founding of the company. The average length of service with the company is 12 years.

Sprayable Wall Coating

A sprayable coating for finishing monolithic, concrete, brick or block construction walls has been announced by Minnesota Mining and Manufacturing Co., St. Paul, Minn. Called "Scotch-Top" plastic wall covering, the new compound provides both color and texture in a single spraying operation. It can be used directly on inside or outside wall surfaces, and on ceilings. The coating is said to resist scuffing, grease, oil, water, sunlight and exposure to weather, the producer said.

Snow Plow Wax Agents

Pennsylvania Refining Co., Cleveland, Ohio, maker of petroleum and specialty products, announces appointment of the following new authorized distributors for Penn Drake Snow Plow Wax:

L. N. Sickels Co., 2233 University Ave., St. Paul 4, Minnesota; American Mexican Petroleum Corp., 155 North Clark St., Chicago 1, Ill.; Andresen Corp., 6500 N. Hamlin Ave., Chicago 45, Ill.; John Bowman, 12 Water Street, Bryn Mawr, Pa.; Philip Hartigan (Road Equipment & Supplies) P. O. Box 283, Honesdale, Pa.; Tim O'Meara Sales Co., 240 State St., Albany 6, N. Y.; R. E. Bradley & Sons, Inc., 248 Jericho Turnpike, Bellerose, N. Y.; J. E. Goodman Sales Ltd., 137 Wellington St., Toronto 1, Canada.

Occupational Safety Posters

A 1949 "Directory of Occupational Safety Posters" has been prepared by the National Safety Council, 20 N. Wacker Drive, Chicago, Ill. A 72-page directory containing 744 illustrations of two-, three- and four-color posters, classified under 15 sections. A convenient index quickly locates posters on specific accident hazards. Posters reproduced range in actual size from 8½ by 11½ inches to 10 x 12 feet.

Price of the directory is 50 cents.

Storage Rack Bulletin

A means of substantially increasing the capacity of available storage space, is presented in Bulletin 4873 on storage racks issued by Barrett-Cravens Co., 4609 S. Western Blvd., Chicago.

Illustrated with installation views of barrel and drum racks and skid racks; the bulletin shows how storage capacity has been multiplied in various establishments by utilizing overhead space. The illustrations also show how large amounts of floor space are rendered available for production operations after the racks are put to work.

New Resn-X Flooring

Rock-Tred Corp., manufacturer of industrial flooring and other building maintenance items, has announced a new Resn-X flooring, which, it is claimed, will remain unaffected by most acids, alkalis, oils, fats and syrups. The manufacturer describes Resn-X as a durable, but resilient heavy-duty resurfacer that can be easily brushed or troweled over any type of floor, concrete, wood, tile, metal, composition, to a thickness of 1/32 to 1/16 inch providing a wear-resisting surface that will put an end to chemical and solvent attack. It is said to be non-slip and a top electrical insulator.

Clipper 1949 Saw Models

Clipper Manufacturing Co., Kansas City, Mo., have developed new 1949 Clipper masonry saw models.

The new models incorporate such production speed-up features as the "Adjust-A-Cut" control for instantaneous one-man adjustment of the cutting head; "streamlined" ball bearing conveyor cart—with aluminum alloy castings which return the flow of water when cutting wet with the Model HD-49, and a new improved "snap-on" blade guard cover. Three separate units—the cutting head assembly, the saw frame and conveyor cart (none weighing over 154 lbs.) make Clipper saws among the most portable.

Four of the nine Clipper models manufactured—the wet and dry-cutting (dustless) Model HD-49, the H-49, the larger industrial Model J-49, and the smaller Model E-49, are equipped with the new "Adjust-A-Cut" control development. By pulling the control knob at the front of the saw frame, one man can lower or raise the cutting head to the desired position.

Adjustable Steel Form

The use of adjustable steel forms to effect economies and attain speed in the construction of concrete bridge railings, on varying grades, is the subject of a just-published folder by Concrete Forms Corp. This is the first of a series of pamphlets describing the use of steel forms for special purposes in poured concrete. It contains complete drawings of "Details of Steel Form for Concrete Bridge Railing" and "Forms for Concrete Bridge Railing—Assembly of Form Panels."

Paved Corrugated Metal Pipe

Advantages of flexible paved corrugated metal pipe in resisting corrosion, erosion, shearing and other damage is described in technical terms with typical applications and engineering data in a new four-page illustrated bulletin issued by United Steel Fabricators, Inc., of Wooster, Ohio.

Illustrations show the flexibility, durability, and four-way protection offered by the company's paved corrugated metal pipe. These features are said to combine to resist shearing and splitting actions resulting from unusual earth movements, erosion caused by washing rocks and rubble, and corrosion caused by moisture, acid soils or electrolysis.

This pipe is recommended for municipal drainage as culverts and storm sewers; for railroad drainage to control seepage from side hills and subsurface water at switch locations; for industrial drainage to reclaim land and protect retaining walls or building foundations; and for public works drainage to control streams and waterways in State and National Parks, and other public lands.

Zonolite Forms Divisions

Increased demand for vermiculite building materials has resulted in formation of three regional divisions by Zonolite Company, 135 South LaSalle street, Chicago, and promotion of four men to key positions.

A. T. Kearney, president, announces that the move will provide the basis for construction of five new plants within these areas.

The North Central division, including Illinois, Kentucky, Ohio, Michigan, Indiana, West Virginia, and the western parts of Pennsylvania and New York, will have headquarters at Dearborn, Mich. Dayton L. Prouty, who has been Detroit territory manager, will manage this division.

The Eastern division, with headquarters in Albany, N. Y., where Zonolite has a processing plant, will be headed by S. L. Dueger, who has been promoted from the post of Chicago territory manager. The division covers eastern New York and Pennsylvania, New Jersey, and all of New England.

The third new division, the South Central, will be under the managership of J. A. Kelley, who has been in charge of the company's mine and plant at Travelers Rest, S. C., where division offices will be. The area he heads includes parts of Tennessee, Mississippi, Oklahoma, Arkansas, and Louisiana.

Expansion of plant facilities in these sections is included in Zonolite's immediate plans. In the east, sites for two factories are being considered in New Jersey and the Philadelphia area. Another new plant probably will be located in the vicinity of Cincinnati. Sites for plants in the South Central division are being studied in Arkansas, Oklahoma, and Mississippi.

Another promotion announced is that of W. G. Rogers, formerly in charge of architectural sales for the Chicago territory, who has been made manager of the Chicago territory, which includes a plant at Blue Island, Ill.

Hyster Straddle Truck

The Hyster Company, Portland, Ore., announces an improved model "M" straddle truck of 18,000-pound capacity. Replacing a 12,000 pound truck, the new machine is not larger in size, but because of a revised main frame structure and new hoist clutch arrangement is capable of carrying a heavier load. Greater visibility from the driver's seat has been attained by use of a forward sloping hood. One of the main features of the new model is a "spring suspension" system which insures better riding and steering, gives more traction for driving wheels, reduces frame stress and tire wear, and facilitates travel over slippery or rough road surfaces. The truck is geared for maximum speeds of from 30 to 45 miles per hour, according to requirements. Without a load the Straddle Truck has an average turning radius on level ground of 12¼ feet.

New Earth Boring Machine

Enlargement of the scope and field of bucket type drilling operations is claimed for the California earth boring machine by its manufacturer, California Welding & Blacksmith Shop, Inc., 7222 East Slauson avenue, Los Angeles 22.

Built as a self-contained unit on skids which can be mounted easily on any truck chassis one and one-half tons or larger, the machine is recommended for sewage disposal, water well and calyx drilling; soil testing; for drilling pier holes and belled footings and for oilfield work.

A new 12-page brochure is offered to engineering and contracting companies interested in studying actual case histories of jobs performed with the machine, with costs per-foot of hole drilled.

Upson Sales Representatives

Appointment of Eugene S. Ostheimer, Edward M. Winters and Robert P. Hagen as sales representatives of the Upson Company, Lockport, N. Y., manufacturers of wood fibre wall and ceiling panels, has been announced by Harry R. Shedd, vice president in charge of sales.

Mr. Ostheimer will cover Maryland; Mr. Winters, North Carolina and South Carolina; and Mr. Hagen, Florida. All three will work under the direction of Charles G. Ostertag, Central division sales manager.

Self-Loading Dirtmover Data

Information on the new D Roadster, one-man operated, self-loading dirtmover, is contained in a new D Roadster literature broadside issued by R. G. LeTourneau, Inc., Peoria, Ill. Illustrated, the broadside carries complete specifications and lists and illustrates its features. These include its positive-ejection scraper, travel speeds up to 25 m.p.h., all-weather torque-proportioning differential, 2-speed positive power steer, electric control and 4-wheel air brakes.

Bell-Bottom Reaming Tool Used by Texas Firm

A flare-bottomed under-reaming tool developed by the Bell Bottom Foundation Co., of Houston and Dallas, Texas, is becoming widely accepted throughout the South and East. Mounted on a truck equipped with a winch, the tool is placed at the bottom of a round hole to bore out a bell-shaped excavation up to three times the original diameter.

Owned by N. L. Schutte and M. C. Schutte, brothers, the company maintains offices at 4655 Telephone Road, Houston and 1208 Industrial Boulevard, Dallas. Equipment is leased on a royalty basis, or drilling is done under contract.

One of the outstanding projects where bell-bottom foundations were used is the Cotton Bowl at Dallas. Thirty-six-inch holes were drilled and 12-foot bell excavations were subsequently reamed at the bottom. The shafts were from 30 to 48 feet deep. Each footing was designed for a bearing load of 1,000 tons.

Bell-Bottom Reaming Outfit

Southern Construction Projects

(Continued from page 13)

house; $250,000.

COPPERHILL—Tri-State Electric Cooperative plans $1,070,000, 222 miles line.

NASHVILLE — Newspaper Printing Corp. plans 3-story addition to present newspaper plant, 1100 Broadway; $800,000 to $1,000,000.

NASHVILLE—Purity Bakers Corp. plans renovating building; $500,000.

NASHVILLE—East Tennessee Natural Gas Co., plans natural gas pipeline from Centerville via Nashville, and intermediate towns to Chattanooga; $14,000,000.

NASHVILLE—National Life and Accident Insurance Co. plans radio television tower and transmitter building; $300,000.

NASHVILLE — McRedmond Brothers, Columbia, plan sausage plant; $250,000.

OAK RIDGE—Atomic Energy Commission has selected Giffels and Vallet, Inc., Detroit, Mich., as Archts.-Engrs. to begin drawing of plans for addition to the gaseous diffusion plant; $70,000,000 expansion program calls for U-235 production facilities.

TEXAS

DAINGERFIELD—Lone Star Steel Co. of Texas applied to Reconstruction Finance Corp. for a loan of $65,000,000 for expansion of plant facilities to include several open-hearth furnaces and steel finishing mills.

EASTLAND—Kirk Pool Operators Commn. plans natural gasoline plant; $1,000,000.

FORT WORTH—Community Public Service Co., Electric Bldg., plans power plant improvements and expansions; $500,000.

GIDDINGS—Lower Colorado River Electric Cooperative plans $1,742,000, 873 miles lines.

HEREFORD—Deaf Smith County Electric Cooperative plans $760,000, 287 miles lines.

HOUSTON — Homco, 300 Wayside Drive, plans plant; $1,000,000.

HOUSTON — Missouri Pacific Lines, St. Louis, Mo., plan freight house and other facilities in New Gulf Coast Yards, $600,000.

JOHNSON CITY—Pedernales Electric Cooperative, Inc., plans $1,330,000, 68 miles line and 609 miles distribution line.

PORT ARTHUR—D. M. Picton Towing Co. plans marine repair shops and docks, on 20-acre tract; $500,000.

VIRGINIA

LYNCHBURG — National Battery Co. completes $500,000 factory.

RICHMOND — Chesapeake and Potomac Telephone Co. of Virginia authorized expenditures of $2,697,000 for improvement and expansion.

WEST VIRGINIA

FAIRMONT—Monongahela Power Co. seeks Securities Exchange Commission authority to allow sale of $6,000,000 30-year first mortgage bonds and 67,000 shares of common stock, to finance construction.

Contract Stage

ALABAMA

GREENVILLE—Mowbray Engineering Co. announced construction underway by force account on 240 miles line, and one sub-station for Pioneer Electric Cooperative; $675,000.

GEORGIA

ATLANTA — M. Richards Brothers Co. let contract to Mion Construction Co., 377 Techwood Drive, N.W., Atlanta, for 1000-car garage; $500,000.

LOUISIANA

BATON ROUGE—Ethyl Corp. let contract to C. F. Braun & Co., Alhambra, Calif., for engineering and construction work on $10,000,000 addition to present plant for producing tetraethyl lead.

MARYLAND

BALTIMORE—Mutual Chemical Co. let contract to Sanderson & Porter, 1348 Block St., for manufacturing building, 1201 Block St.; $275,000.

BALTIMORE—Northern Central Railroad, Broad Street Station, Philadelphia, Pa., let contract to McLean Contracting Co., 1501 Fidelity Bldg., for extension to Pier 1, 1900-2000 S. Clinton St., Canton; $830,000.

BALTIMORE COUNTY—Consolidated Gas, Electric, Light and Power Co., Lexington Bldg., has plans complete for electric generating station, west side Main St., 700 feet south Woodland Ave., Dundalk; $1,268,000; owner builds.

NORTH CAROLINA

CAROLEEN — Henrietta Mills let contract for $2,336,000 worth of machinery and equipment to replace worn-out units in the plant.

CLINTON—Lunday Packing Co., Clinton, received low bid from W. A. Simon, Inc., Wilmington, at $222,554, for packing plant.

LEAKSVILLE — Duke Power Co. let contract to General Electric Co., Schenectady, N. Y., for tandem compound steam turbine-generator, to be installed at new $15,000,000 electric generating plant, being built on north bank of Dan River, between Spray and Draper.

SOUTH CAROLINA

ABBEVILLE—Deering-Milliken and Co., Inc., let contract to Daniel Construction Co., Greenville, for addition to Abbeville Mills Corp.; $1,000,000.

TENNESSEE

ELIZABETHTON — American Bemberg Corp. let contract to Taylor Construction Co., Elizabethton, at $305,000, for new building to house more machines; part of a $2,250,000 expansion.

GODWIN—Tennessee Valley Authority, New Sprankle Bldg., Knoxville, plans construction by force account of addition to phosphate plant; $200,000.

TEXAS

AUSTIN — City let contract to Combustion Engineering Co., 204 Madison Ave., New York, at $506,113, for steam generating units, Contract No. 4, for power plant improvements.

GARLAND—Kraft Food Corp., Dallas, convert Continental Motors Plant into food-making center by sub-contract and force account; $240,000.

MINERAL WELLS—Brazos River Gas Co., Mineral Wells, will build absorption plant, processing natural gas 75 per cent propane recovery; $475,000.

RANKIN — Plymouth Oil Co., Sinton, let contract to Hudson Engineering Corp., 2711 Danville St., Houston, for gasoline plant; $5,500,000.

RANKIN — Slick-Urschel Oil Co., Milam Bldg., San Antonio, let contract to Texas Natural Gasoline Corp., Milam Bldg., San Antonio, at $6,000,000, for gasoline plant.

SEMINOLE—Magnolia Pipe Line Co., Magnolia Bldg., Dallas, construct pumping station; $275,000.

WICHITA FALLS — Panhandle Producing & Refining Co., Panhandle Bldg., will build cracking plant; $1,000,000.

PRIVATE BUILDING

Proposed Stage

FLORIDA

MIAMI BEACH — Sunset Isle Hotel plans hotel; $300,000.

LOUISIANA

JENNINGS — Fred Zigler, Chmn., Hotel Committee, proposed new $500,000 hotel.

MARYLAND

BALTIMORE—Boy and Girl Scout Councils plan $480,380 camp development program in Maryland.

SILVER SPRINGS — Speridon S. Stamatos plans $1,000,000 apartment project of 125 units at Grubb and Brooksville Rds.

MISSISSIPPI

JACKSON—William P. Engel, Leo Mendel and H. M. Strauss, Birmingham, Ala., sponsors, plan apartment project, Lakeland Dr., $388,880.

MISSOURI

CLAYTON — Stratford Lee Morton, Arcade Bldg., 812 Olive St., plans shops, Forsyth Blvd.; $400,000.

COLUMBIA — Presbyterian Church plans building, $400,000.

KANSAS CITY—Katz Drug Co. plans retail drug store; $250,000.

ST. LOUIS—St. Louis Housing Authority plans $5,000,000 low-rent housing project.

OKLAHOMA

HENRYETTA—Hillcrest Homes, Inc., plans 42-home project; $300,000.

TULSA—Allen D. Strahm, 3030 S. Madison Ave., plans auto parking garage and retail store; $300,000.

TULSA—Young Men's Christian Association announced opening of campaign to raise $1,450,000 for building.

SOUTH CAROLINA

CHARLESTON — Worth Agency, Inc., 90 Broad St., plans apartment building; $2,000,000.

GREENVILLE — Robert I. Woodside announced plans for $300,000 hotel-apartment building.

TENNESSEE

NASHVILLE — Jewish Community Center plans building; $500,000.

NASHVILLE — Herschel Green, 329 Union St., soon to build 201 residences; $1,750,000.

NASHVILLE—J. E. Crain Contracting Co. plans cooperative apartment project on Granny White Pike; $400,000.

TEXAS

AUSTIN — East Side Investment Co. plans hotel and office building; $2,000,000.

BEAUMONT—Neisner Brothers, 101 Broadway, San Antonio, plan building; $400,000.

BELLAIRE — Miles Strickland, Second National Bank Bldg., Houston, plans 80 residences; $800,000.

CORPUS CHRISTI—Corpus Christi Housing Authority, 3701 Ayres St., plans 250 housing units, $1,250,000, Project No. 1; 350 housing units, $1,750,000, Project No. 2, and 400 housing units, $2,000,000, Project No. 3.

CORSICANA—D. P. Stephenson and Assoc., Frost Bank Bldg., San Antonio, plan hotel; $1,000,000.

DALLAS — Great American Reserve Insurance Co. plans $600,000 office building.

EL PASO—First Christian Church Congregation plans building; $300,000.

GOOSE CREEK—Sears, Roebuck and Co., 1297 Main St., Houston, plans building; $300,000.

GOOSE CREEK — J. Weingarten, Inc., 808 Prairie St., plans super-market; $250,000.

HOUSTON — C. O. Beeler, 5047 Marietta Lane, plans apartment; $450,000.

HOUSTON — Jess Little, 2620 Midlane St., plans 75 residences, adjacent to West Pl.; $675,000.

HOUSTON — Michael DeGeorge, Mgr., DeGeorge Estate, plans Hotel McCoy; $350,000.

HOUSTON — George Haikin, 2107 North Blvd., plans business center; $500,000.

HOUSTON—United Builders, Inc., 11002 Aldine-Westfield Rd., plans 100 residences in Greenwood Estates, $475,000; 50 residences in Parkwood Estates, $250,000.

HOUSTON — E. L. Chapman and George Haikin, 3718 Humble Rd., will build community center; $500,000.

HOUSTON — S. N. Adams plans shopping center, estimated cost between $750,000 and $1,000,000, and $2,000,000 housing project, Highland Village.

HOUSTON — Meadowbrook Building Co. plans 100 residences in Meadowbrook area; $1,000,000.

HOUSTON — William G. Farrington plans $15,000,000 housing project and shopping center.

HUGHES SPRINGS — Lone Star Construction and Development Co., 2632 Swiss St., Dallas, plans housing project, Lakeview Addition; $500,000.

ODESSA — Odessa Civic Hotel Co. plans hotel; $1,000,000.

SAN ANTONIO—Jim Montanio, 5048 Broadway, plans 50 residences, Robards Addition; $300,000.

SAN ANTONIO—G. S. McCreless, 1102 Fair St., plans 25 residences, Mary Ann and Francis Jean Drs.; $275,000.

SAN ANTONIO—Johnny Chuoke, 116 Tuttle Rd., plans 15 residences; $250,000.

SAN ANTONIO—Ray Ham and Eva Rosow, Brady Bldg., plan apartment; $250,000.

SPRING BRANCH — Tom Ruland, Perry Menkin, H. L. Slaughter and L. C. Klump plan $1,000,000 shopping center.

VIRGINIA

ALEXANDRIA — Vaughan B. Connelly, John B. Phillips, Elliott F. Hoffman and Frank Pratt plan $7,500,000 apartment development with private yacht basin, South Alexandria.

Contract Stage

ALABAMA

BIRMINGHAM — Finley Park Apartments received low bid from J. H. West at $247,109 for apartment project.

SHEFFIELD—Muscle Shoals Community Hotel Co., Inc., received low bid, $382,945, from Brice Building Co., P. O. Box 1028, Birmingham, for hotel.

ARKANSAS

LITTLE ROCK — Capitol Avenue Building Co. let contract to The Baldwin Co., Wallace Bldg., for office; estimated cost $250,000.

DISTRICT OF COLUMBIA

WASHINGTON — Barnaby Gardens, Inc., 1005 New York Ave., N.W., will build three apartments; $275,000.

FLORIDA

CLEARWATER — J. C. Emerson Co., Brooksville, received contract for Negro Housing Project; $1,000,000.

MIAMI — Beth David Synagogue received low bid, $790,000, from Star Construction Co., 1636 duPont Bldg., Miami, for synagogue.

MIAMI—Mackie Co., 2818 S.W. 22nd St., will build by force account 134 residences in Grapeland Heights Section; $670,000.

ST. PETERSBURG — D. D. Roselli will build apartment; $250,000.

GEORGIA

ATLANTA—Orchard Knob Co. plans residential development, Old Jonesboro Rd.; $300,000.

LOUISIANA

NATCHITOCHES—Community Hotel Corp. let contract to Dyhre Construction Co., P. O. Box 1021, Lake Charles, La., at $350,891, for St. Denis Hotel.

SHREVEPORT—W. Harry Johnson Estate has construction underway by Tri-State Realty Co., Ardis Bldg., on commercial building; $501,000.

MARYLAND

BALTIMORE—The Fenwick Corp. of Baltimore, 11 E. Fayette St., plans 46 residences; $368,000.

BALTIMORE—Ralph W. Simmers, 2030 E. Belvidere Ave., will build 66 residences; $395,000.

MISSOURI

ST. LOUIS—Boulevard Frontage Co., 4225 Hampton, will build $325,000 store, 5819 Bancroft.

ST. LOUIS — Travelers Insurance Co. let contract to G. L. Tarlton Contracting Co. for remodeling and modernizing of Commercial Building, Sixth and Olive; $700,000.

NORTH CAROLINA

FAYETTEVILLE—Highlands Presbyterian Church received low bid, $340,000, from H. L. Coble Construction Co., Greensboro, for chapel, educational and recreation building.

GREENSBORO—Ellis Stone Co., Inc., let contract to H. L. Coble Construction Co. for $2,000,000 store, 203-211 South Elm St.

SOUTH CAROLINA

FLORENCE—First Baptist Church let contract to Crosland Construction Co. Columbia, at $415,776, for church.

GREENVILLE—Ivey-Keith Store let contract to Daniel Construction Co. at $750,000 for renovating Finlay Building, intersection of East North and North Main Sts.

TENNESSEE

MEMPHIS — Plaza Apartments, Inc., will build additional nine apartment buildings, Poplar and Prescott; $1,000,000.

TEXAS

CORPUS CHRISTI — Church of the Good Shepherd received low bid from J. A. Walsh, 1810 Palm Dr., at $379,975, for building.

DALLAS — Marsalis Development Co. will build 65 residences, Trinity Heights; $390,000.

DALLAS—Mercantile Bank let contract to Vilbig Brothers, Inc., Singleton Blvd., for garage and office building; $1,650,000.

HOUSTON — C. H. Kievner will build $1,000,000 community center at Katy Rd. at Brogden Rd.

HOUSTON—Reed and Yancey Construction Co. has construction underway on 10 of 45 new residences, Sunset Terrace, Section 12, off Bissonnett; $1,000,000.

HOUSTON — Manuel Rudy, c/o Cossette Demolishing Co., 210 Sidney St., will build apartments, Kingston St.; $425,000.

HOUSTON—Home Owned Properties, Inc., Scanlan Bldg., will build 288 residences, Stratford Place; $1,350,000.

HOUSTON—Brace & Carruth will build 492 residences in Oak Forest Subdivision, off North Shepherd Dr.; $5,000,000.

HOUSTON — Home Owned Properties will build residences, Westhaven Estates, off Westheimer Rd.; $1,000,000.

HOUSTON—Mike DeGeorge, DeGeorge Estates, let contract to Sam Lopresti, for hotel, Almeda Rd.; $150,000.

HOUSTON—J. M. Heflin, 1825 Harvard St., will build 30 residences at Wirt Rd. and Katy Rd.; $300,000.

HOUSTON—Martin Nadelman, Pres., Scott Terrace Housing Corp., has construction underway on $2,500,000 housing project in Old Spanish Trail area.

PASADENA—Max Krauss will build 150 duplexes; $1,350,000.

SAN ANTONIO — L. E. Fite and Co., 1001 Donaldson Ave., will build 150 residences in Woodlawn Park area; $875,000.

WICHITA FALLS—Norris Brothers Lumber Co., 3400 Hilliday St., will build 47 residences; $350,000.

VIRGINIA

NORFOLK — Sears, Roebuck and Co., 675 Ponce de Leon Ave., NE, Atlanta, let contract to Artley Co., 504 E. Bay St., Savannah, Ga., at $2,000,000, for retail store.

PUBLIC BUILDING

Proposed Stage

ALABAMA

BIRMINGHAM — City plans 10-story City Hall; $2,500,000.

BIRMINGHAM — St. Vincent's Hospital plans 6-story annex to existing building; $1,000,000.

DECATUR—City Board of Education plans junior-senior high school; $1,000,000.

FORT PAYNE—DeKalb County Hospital Association, 55-bed hospital; $500,000.

MONTGOMERY — State Building Commission plans livestock coliseum; $1,500,000.

TUSCALOOSA—Druid City Hospital to release plans for bids about June 1 for 200-bed hospital; $2,704,000.

ARKANSAS

HOT SPRINGS—Negro Baptist Convention plans improvement and enlargement of building for hospital; $750,000.

HOT SPRINGS — Board of Education approved $1,250,000 bond issue for building program.

LITTLE ROCK — State Tuberculosis Hospital plans addition; $628,980.

LITTLE ROCK—Commissioner of Public Buildings, Washington, D. C., has sites under consideration for erecting building to house offices; $5,500,000.

DISTRICT OF COLUMBIA

WASHINGTON—Children's Hospital plans new Children's Hospital; $1,898,000.

FLORIDA

GAINESVILLE — University of Florida plans six new dormitories; $4,628,000.

PENSACOLA—Baptist Memorial Hospital plans 100-bed hospital; $989,604.

TAMPA—Hillsborough County Commissioners plan $3,000,000 courthouse.

GEORGIA

ATLANTA—City plans renovation of existing building and new 4-story addition to main branch of Carnegie Library; $500,000.

AUGUSTA — Richmond County approved $4,000,000 bond issue for school improvements.

LOUISIANA

BATON ROUGE—East Baton Rouge Recreation Commission has site for a Municipal Stadium; $500,000.

NEW ORLEANS—DePaul Sanitarium, Sister Anne, plans addition; $1,234,419.

MARYLAND

State Board of Mental Hygiene seeking $40,000,000 for improvements in all State Mental Hospitals.

County Commissioners, Association of the Western Shore, Christian H. Kahl, Association Pres., is seeking financial $145,000,000 school building program.

BALTIMORE—Mayor Thomas D'Alesandro has recommended to Governor Preston Lane that state and city construct a $10,000,000 combined State-City Office Building.

BALTIMORE COUNTY—Baltimore County Public Schools plan $21,000,000 for emergency construction during the next four years.

MISSISSIPPI

GULFPORT—Board of Supervisors of Harrison County selected Shourds-Mogabgab-Bean, Shaw & Assocs., Smith & Lachin, as Archts. for 100-bed hospital; $1,000,000.

JACKSON—City plans $4,750,000 bond issue for school program.

JACKSON—R. W. Naef, 213 Masonic Bldg., Archts.-Engrs., have plans nearing completion for Infirmary Building for Negroes, Mississippi State Sanatorium; $1,875,000.

MISSOURI

COLUMBIA—University of Missouri plans school building program for 1949-51.

KIRKSVILLE—Kirksville College of Osteopathy & Surgery plans addition and remodeling of hospital; $784,250.

TROY — Lincoln County plans hospital; $600,000.

NORTH CAROLINA

CHARLOTTE—City may vote in June on $999,000 bond issue for construction of seven white and four Negro playfields, two swimming pools for white sections and one in a Negro section.

CHARLOTTE—Charlotte School Board has final plans and specifications for Chantilly Elementary School; $400,000.

WAKE FOREST — Wake Forest College plans $2,000,000 library.

OKLAHOMA

BARTLESVILLE — Washington County Commissioners plan additions to Memorial Hospital; $600,000 bond issue voted.

LAKE MURRAY — State Board Water Resources, Oklahoma City, approved issuance of revenue bonds for tourist lodge and cabins; $800,000.

NORMAN — University of Oklahoma plans geology and mineral industries building; $500,000.

OKLAHOMA CITY — University of Oklahoma plans $3,000,000 school program.

OKLAHOMA CITY—Mercy Hospital contemplates erection of 100-bed addition; $1,500,000.

TULSA—University of Tulsa plans science building; $750,000.

SOUTH CAROLINA

AIKEN—Aiken County Hospital plans addition; $525,000.

TENNESSEE

ELIZABETHTON—Carter County Board of Education plans new high schools; $1,000,000.

KNOXVILLE — City plans courthouse and city-county office building; $10,000,000.

KNOXVILLE—City plans new Fulton High School; $1,734,000.

LOUDON—Loudon County Board of Education will soon call for bids for new school; $500,000.

MEMPHIS—Shelby County Commissioners plan $3,600,000 bond issue for school building improvements.

NASHVILLE — Davidson County Board of Education plans 20 major elementary and high school buildings; $5,000,000.

NASHVILLE — Board of Education plans new school building for the blind; $2,000,000.

NASHVILLE — State Health Department plans tuberculosis hospital for Middle Tennessee; $3,000,000.

NASHVILLE — Midstate Baptist Hospital plans 100-bed addition; $1,000,000.

TEXAS

CLEAR CREEK—Clear Creek Consolidated Independent School District plans building projects; $750,000.

DALLAS — O'Connor Tuberculosis Children's Hospital plans children's tubercular hospital; $1,000,000.

DALLAS—Southern Methodist University plans sorority dormitory; $1,000,000.

DALLAS—City plans master automobile parking program, including outside open areas and inside housing; $1,500,000.

DEER PARK — Deer Park Independent School District plans high school; $2,000,000.

DENTON—North Texas State College plans stadium, $750,000; 18-hole golf course, $150,000; three new football fields and two baseball diamonds; $350,000.

DENTON—City and County, 60-bed Public Hospital Building; $712,500.

FALFURRIAS—Brooks County Independent School District plans high school; $600,000.

HOUSTON—City plans selling between $12,000,000 and $14,000,000 in improvement bonds during 1949; includes $2,000,000 for rights-of-way, $1,725,000 for new tuberculosis hospital, $1,375,000 for a new police station and jail, airport improvement bonds, with the amount undetermined, and several millions for storm and sanitary sewers and paving.

HOUSTON—Arabia Temple Shrine plans $2,500,000 Shrine Cripple Children's Hospital to be located in Texas Medical Center.

HOUSTON—Methodist Hospital plans $3,000,000 hospital in the Texas Medical Center.

LUBBOCK — Lubbock County plans courthouse; $1,500,000 bond issue approved.

MEXIA—State Board of Control, Austin, plans addition at Mexia State School and Home; $4,250,000.

PALESTINE—Anderson County plans general hospital and laboratory; $504,900.

RUSK — State Board of Control, Austin, plans 220 patient additions, Tuberculosis Hospital for Mental Patients; $635,000.

SAN ANTONIO—Trinity University plans building program for 1949, approximately 1,110,000 sq. ft.; $10,000,000.

SAN ANTONIO — State Board of Control, Austin, plans 250-patient addition, Tuberculosis Hospital for Mental Patients, $1,062,500, and 480 patients additions, San Antonio State Hospital, $2,100,000.

TERRELL — Terrell State Hospital plans 550-bed building; $2,000,000.

TYLER — State Board of Control, Austin,

(Continued on page 46)

Southern Construction Projects

(Continued from page 45)

plans 200 patients additions, East Texas Sanatorium; $850,000.

WACO—Baylor University plans stadium; $1,000,000.

VIRGINIA

LYNCHBURG—Commonwealth of Virginia, Department of Mental Hygiene and Hospitals, Richmond, building, Lynchburg State Colony; $2,038,597.

RICHMOND — State Health Commission plans modern 300-bed Negro tuberculosis hospital; $2,000,000.

Contract Stage

ALABAMA

AUBURN — Alabama Polytechnic Institute let contract to Raymond M. Lee Co., 1004 Edgewood Ave., Atlanta, Ga., for stadium addition; $473,638.

MOBILE — Blessed Martin de Porres Hospital let contract to Daniel Construction Co., 822—7th Ave. South, Birmingham, at $369,421, for hospital.

TUSCALOOSA—University of Alabama let contract to Batson Cook Co., West Point, Ga., for girls residence hall; $369,288.

ARKANSAS

LITTLE ROCK — Arkansas State Hospital let contract to Pittnar-Dickman & Pickens, Gazette Bldg., Little Rock, for tuberculosis hospital building; $467,890.

MONTICELLO — Drew County let contract to Leveck & Son, Little Rock, at $361,985, for 55-bed hospital.

DISTRICT OF COLUMBIA

WASHINGTON—Public Buildings Administration let contract to Dravo Corp., 5th Ave. and Liberty St., Pittsburgh, Pa., at $870,290, for Boiler No. 3, West Central Heating Plant.

WASHINGTON — District Commissioners received low bid from E. L. Daniels, Arlington, Va., for Walker-Jones Elementary School; $642,632.

WASHINGTON — District Commissioners received low bid from Roystone, Grimm & Sammons, Arlington, Va., at $517,506, for laboratory, Gallinger Municipal Hospital.

FLORIDA

BOYNTON BEACH — Palm Beach County Board of Public Instruction, West Palm Beach, let contract to J. Hilbert Sapp, 4016 Washington Road, West Palm Beach, for high school; $450,459.

ST. PETERSBURG—American Legion Hospital for Crippled Children received low bid of $645,000 from Mills and Jones, Inc., for hospital.

TALLAHASSEE — Board of Control, 520 Hardee St., Miami, received low bid from Beers Construction Co., 70 Ellis St., Atlanta, Ga., for men's hall at Florida State University; $408,745.

WINTER HAVEN — State Improvement Commission, Tallahassee, let contract to J. L. Ewell Co., Lakeland, at $358,000, for agricultural and citrus inspection building.

GEORGIA

SAVANNAH—Board of Education received low bid from General Construction Co., P. O. Box 1091, Columbia, S. C., with W. B. Johns, 542 Moreland Ave., Atlanta, Ga., for Negro high school; $543,700.

LOUISIANA

CROWLEY—Acadia Parish Police Jury rejected all bids for purchase of $1,000,000 bond issue for courthouse; bids to be readvertised for bonds at a later date.

DeRIDDER—Beauregard Memorial Baptist Hospital received low bid from W. C. Salley, Monroe, at $384,445, for new Memorial Hospital.

NEW ORLEANS—St. Dominic Church let contract to Lionel F. Favret, 937 Gravier St., New Orleans, for new three-story parochial school building; $476,346.

MARYLAND

Kent County Board of Education, Chestertown, let contract to William F. Sutter, Nescopeck, Pa., $914,000, for Chestertown High School and Garrett High School in Chestertown; additions to Rock Hall High School at Rock Hall; Galena Elementary School in Galena.

BALTIMORE—Morgan State College Board of Trustees let contract to John K. Ruff, Inc., 100 W. 22nd St., Baltimore, for academic building; $593,593.

MISSISSIPPI

ELLISVILLE—State Building Commission, Jackson, let contract to L. B. Priester & Sons, Meridian, at $383,000, for dormitories at Feeble-Minded Colony.

MISSOURI

MARSHALL—Department of Public Health & Welfare, Jefferson City, let contract to Bennett Construction Co., 329 Westport Road, Kansas City, for boys' dormitory at Missouri State School; $408,100.

ROLLA — Phelps County School Board, School of Mines & Metallurgy let contract to McCarthy Brothers Construction Co., 4903 Delmar, St. Louis; $494,970.

ST. LOUIS—Ritenour Consolidated School District let contract to Lecoutour Construction Co., for new senior high school; $455,965.

NORTH CAROLINA

DURHAM—Durham County let contract to P. S. West Construction Co., Statesville, for Rocky Knoll School; $355,500.

GEORGETOWN—Board of Trustees of Hospital received low bid from Southern States Construction Co., 1211½ Washington, Columbia, at $379,944, for Georgetown County Memorial Hospital.

LAURINBURG—Scotland County Memorial Hospital let contract to McKoy-Helgerson Co., S-A W. North, Greenville, S. C., at $578,000, for 100-bed Scotland County Hospital.

OKLAHOMA

OKLAHOMA CITY — A. & M. College let contract to J. J. Bollinger Construction Co., Oklahoma City, for home economics building; $303,300.

SHAWNEE—Board of Education let contract to Cowen Construction Co., Shawnee, for High School; $566,412.

SHAWNEE — Pottawatamie County Board of Education let contract to Link Cowan, Shawnee, for high school; $448,675.

SOUTH CAROLINA

SUMTER—Board of Education let contract to Dawson Engineering Co., Charleston, for elementary School; $554,723.

TENNESSEE

MEMPHIS—Sacred Heart Catholic Church let contract to Seth E. Gliem & Associates, Memphis, for new Catholic school; $500,000.

NASHVILLE — City let contract to Boone Contracting Co., 3rd National Bank Bldg., for Cohn High School; $714,442.

OAK RIDGE—United States Atomic Energy Commission let contract to A. Farnell Blair Co., Inc., Atlanta, Ga., for elementary school; $466,934.

TAZEWELL — Claiborne County Board of Education let contract to V. L. Nicholson Co., Knoxville, $341,000, for Midway School; LaFollette Hardware & Lumber Co., LaFollette, $350,000, for Powell Valley School.

TEXAS

DALLAS—Dallas Independent School Board Board let contract to Norgaard and Shaw, 2925 N. Henderson, Dallas, for addition to Maple Lawn Elementary School; $493,000.

GALVESTON—St. Mary's Catholic Orphanage let contract to Texas Gulf Construction Co., 2008 S. Wayside Drive, Houston, for orphanage; $397,525.

MONAHANS—Monahans-Wickett Independent School District let contract to Rose Construction Co., Abilene, for high school; $706,000.

VIRGINIA

ALEXANDRIA—Board of Education let contract to Eugene Simpson & Brothers, Alexandria, for addition to Maury Elementary School and MacArthur Elementary School; $419,600.

NOTTOWAY—Board of Education let contract to Mottley Construction Co., Farmville, for Negro high school; $431,900.

RADFORD—Virginia Polytechnic Institute let contract to James M. Turner, Roanoke, for dormitory building for Radford College; $358,225.

HIGHWAYS, BRIDGES

Proposed Stage

DISTRICT OF COLUMBIA

WASHINGTON — President Harry S. Truman proposes a $23,500,000 national forest highway program for fiscal year beginning next July 1.

FLORIDA

MIAMI BEACH—City will hold bond election March 8 on $831,000 bond issue for street lighting.

GEORGIA

ATLANTA—City has plans near completion for underpass at intersection of Gordon, Glenn, W. Whitehall and Murphy Streets, and widening of streets; $400,000.

BRUNSWICK—State Highway Department has work underway for footings of $5,000,000, Turtle River Bridge; Diamond Construction Co., Washington, D. C., and Savannah, Ga., have substructure contract.

KENTUCKY

FRANKFORT—State Highway Department plans road program involving expenditure of more than $11,000,000.

MARYLAND

Governor Preston Lane predicted a $50,000,000 road construction and repair program for 1949.

BALTIMORE—State Roads Comm. recommended bridge across Patuxent River from Benedict in Charles County to Hallowing Point in Calvert county; $2,420,000.

HAGERSTOWN—Richard Sweeney, Mayor, may vote in March on $1,000,000 bond issue for underpasses or overpasses.

MISSOURI

JEFFERSON CITY—State Highway Commission approved $10,500,000 for maintenance.

KANSAS CITY—City Plan Commission proposes 4 major trafficway projects; $20,000,000.

NORTH CAROLINA

RALEIGH — State Highway Commission plans new Chapel Hill-Durham Rd. for improvements in Dare, Haywood, Yancey and Mitchell counties; $1,500,000.

OKLAHOMA

OKLAHOMA CITY — State Highway Commission plans projects in following counties:

Tulsa—US 66, 2.15 mi. grading, drainage, bridge, high-type paving; $275,500.

Mayes—SH 20, 6.5 mi. grading, drainage, bridges, high-type paving; $647,500.

Washington—US 75, 11.8 mi. to a point east of Bartlesville, high-type paving; $622,500.

Washington—US 60, 1.5 mi. to new US 75, high-type paving; $157,000.

Sequoyah—US 59, 5.75 mi. base and intermediate surface; $218,000.

McIntosh—US 266, 7 mi. grading, drainage, bridge, high-type paving; $600,000.

Latimer—SH 2, 5 mi. regrading base, high-type surface; $250,000.

Atoka and Pittsburg—US 69, from end of paving near Chockie northeast to north side of Kiowa—grading, drainage, bridges; $373,200.

Atoka and Bryan—12.3 mi. high-type paving; $650,000.

LeFlore—US 59, from Heavener south approx. 5 mi., regrading, base, intermediate type surface; $250,000.

Johnston and Marray—SH 12, 20.5 mi. base, high-type paving; $661,125.

Coal—US 75, 8 mi. high-type paving; $355,000.

Lincoln—US 66, widen and repair 5.3 mi. of 20-ft. concrete paving and bridges; widen and repair 1.5 mi. 18-ft. concrete paving base and asphalt concrete paving base and asphalt concrete surface; $410,000.

Creek—US 66, 4.8 mi. additional funds for high-type paving; $183,000.

Garvin—SH 29, 11.82 mi. high-type paving; $710,000.

Oklahoma—US 66, 12.9 mi. widening and resurfacing; $778,000.

Cleveland—US 77, 7.84 mi. widening and resurfacing; $250,000.

Kingfisher—SH 51, 8 mi. grading, drainage, bridge, low-type surface; $190,000.

Cotton—US 70, 9.2 mi. to Randlett grading, drainage, bridge, low-type surface; $210,000.

Stephens—US 81, grading, drainage, bridge, high-type paving, approx. 2.07 mi.; $300,000.

Jackson—SH 34, 8 mi. grading, drainage, bridges, low-type surface; $289,000.

Roger Mills—8 mi. base and intermediate surface; $270,000.

Washita—SH 41, 7.1 mi. grading, drainage, bridge, low-type surface; $297,000.

Woodward—SH 15, 8.5 mi. base, intermediate surface; $233,750.

Beaver—SH 3, 8 mi. base, intermediate type surface; $200,000.

Beaver—SH 3, 8 mi. base, intermediate type surface; $225,000.

Rogers—SH 88, 6.2 mi. grading, drainage,

bridges, base intermediate type surface; $300,000.

Adair—SH 51, 6 mi. base and surface; $218,000.

Haskell—SH 9, 4.6 mi. base and surface; $202,000.

McIntosh—US 69, widen 3 blocks in Eufaula 5 ft. on each side.

Cherokee—SH 51, 0.75 mi. grading, drainage, bridge, base surface; $141,084.

Muskogee—US 62, 3 mi. grading, drainage, bridge, surfacing; $236,516.

Grady—SH 19, 9.75 mi. high-type paving; $450,000.

Caddo—SH 58, SH 41, 12.5 mi. base, surface; $300,000.

Dewey—US 60, 10 mi. east of Vici east 5 mi., base, intermediate type surface; $150,000.

Ellis—US 283, 10.75 mi. base, intermediate type surface; $300,000.

Tillman—US 70, 8.5 mi. west of Grandfield grading, drainage, bridges, low-type surface; $179,000.

Dewey—SH 51, 10 mi. to Blaine county line base, intermediate ttype surface; $250,000.

Alfalfa—SH 38, 13 mi. to Garfield county line base, intermediate type surface; $145,000.

Noble—SH 40, bridge, 8.756 mi. high-type paving; $590,580.

Alfalfa—SH 58, 11 mi. grading, drainage, bridge, base, surface; $120,000.

TENNESSEE

MEMPHIS—Shelby County plans expenditures of $1,200,000 for road improvements during 1949.

TEXAS

CORPUS CHRISTI — Nueces County approved issuance of $1,250,000 bond issue for street improvements.

CORPUS CHRISTI — Nueces County plans causeway at Padre Island; $1,700,000.

Contract Stage

DISTRICT OF COLUMBIA

WASHINGTON—Public Roads Administration let contract to Corson & Gruman Co., $100,981, for paving approaches, George Washington Memorial Parkway, Proj. 6A16.

WASHINGTON—District of Columbia, District Bldg., received low bid from Payne and Oliver, R. F. D. 2, Baileys, Crossroads, Va., $118,300, for grading approach roadways to 14 Street Bridge over Potomac River.

WASHINGTON — District Commissioners let contract to Harry Rolfe, 204 Taylor, Chevy Chase, Md., $264,384, for repairs asphalt pavements, roadways, etc., East section.

WASHINGTON — District Commissioners let contract to Harold J. Rolfe, 204 Taylor, Chevy Chase, Md., $224,836, for repairs roadways, sidewalks, etc., various locations.

FLORIDA

CLEARWATER — Pinellas County let contract to W. H. Armston, Dunedin, $1,011,038, for Belleair Beach causeway.

KENTUCKY

FRANKFORT — Department of Highways let contracts for projects in following counties:

Jefferson — U 528(2), SP 56-898, Louisville Inner Belt Line; 2.389 mi. grade, drain, and bituminous concrete pavement; Kelly Construction Co., Louisville; $173,832.

Madison—FI 299(5), SP 76-51, 76-171, Richmond-Berea Rd.; 7.730 mi. grade, drain, and traffic bound limestone; Arnett Construction Co., Berea; $395,972.

Garrard — 5 mi. of Nicholasville-Lancaster US 27 road, extending 1½ mi. south of Camp Nelson to near Marksbury; Kelly Contracting Co., Louisville; $259,341.

Greenup—Greenup-Russell road, beginning at east corporate limit of Raceland and extending toward Russel, 1.062 mi. grade, drain and high-type surface; Nally & Ballard, Bardstown; $224,658.

LOUISIANA

BATON ROUGE—Department of Highways let contracts for projects in following parishes:

Iberia—Proj. No. 913-04-62; 4.627 mi. gr., dr., struc., PCC pvt., and other work on New Iberia-Loreauville Hwy.; Forcum-James Co.; $284,228.

Iberville—For new bridge over Bayou Plaquemine; Austin Bridge Co., Dallas, Tex.; $670,884.

St. Martin—State Project No. 560-05-03; Bayou Teche bridge at Parks on Route 361, to Austin Bridge Co., Dallas, Tex.; $201,999.

BATON ROUGE—Department of Highways received low bids for projects in following parishes:

Lafayette—State Proj. No. 213-05-08, Milton-Youngsville Hwy., State Rt. No. 175; 5.656 mi. grading, shaping roadway, small drainage structures, gravel base course; Henry & Hall, Dubach; $168,449.

St. Martin and St. Landry—State Proj. No. 404-03-02, Cecelia-Arnaudville Hwy., State Rts. 401 and 356; 6.637 mi. grading, drainage structures, aggregate type base course; Roy M. Lilly, Fidelity Bank Bldg.; $258,851.

St. Bernard—State Proj. No. 703-04-73, 2,190 cu. yds. washed gravel, 700 cu. yds. reef shell, 300 cu. yds. clam shell, furnished spot-dumped on public roads and 270 lin. ft. 18-in. reinforced concrete culvert pipe furnished and delivered in Ward 2; Kivett & Reel, Sun, La., Item 1, 2-B, 3-A, 4, 5 and 6; Jahncke Service Inc., New Orleans, Item 2-A, and Stevens & Co., New Orleans, Items 3-B and 7.

NEW ORLEANS—City Council received low bids for following projects:

Pro. No. 9926—concrete and asphalt paving on various streets; Boh Brothers Construction Co., 2400 Cypress; $181,364.

Pro. No. 9946—black topping various sections; Texas Bitulithic Co., $107,416, and 1B, $105,373.

Pro. No. 9947—black topping various sections; Texas Bitulithic Co., $112,075, and 1B, $110,103.

Pro. No. 10,006—black topping various sections; Lang Co., $118,801, and B1, $116,649.

MARYLAND

BALTIMORE—Board of Estimates let contract to Arundel-Brooks Concrete Corp., 921 S. Wolfe St., $147,250, for furnishing pre-mixed transit mixed concrete.

BALTIMORE—State Roads Commission, L. H. Steuart, Sec., 108 E. Lexington St., received low bids for projects in following counties:

Talbot—Contract No. T-126-1-215; repairs to substructure and superstructure of existing concrete bridge over Miles River, State Route No. 370; Empire Construction Co., 31 S. Calvert St.; $119,655.

Queen Anne and Caroline—Contract No. Q-224-1-215; Co-178-1-215; grading, drainage and surfacing of relocation of State Rt. No. 404, 3.850 mi.; George & Lynch, Inc., Wilmington, Del.; $535,430.

Anne Arundel—Contract No. AA-368-4-358; grading, drainage and surfacing of section of proposed Washington-Baltimore Expressway, 0.654 mi. of expressway and 1.468 mi. of connecting roadways; C. J. Langenfelder & Son, Inc., 8427 Pulaski Hwy.; $1,330,695.

BALTIMORE — State Roads Commission, 108 E. Lexington St., let contracts for projects in following counties:

Washington — Contract No. W-391-1-615; modification, relocations, bridge widening, cattle pass and resurfacing, (U.S. Rt. 40); E. D. Plummer & Sons, Chambersburg, Pa.; $621,248.

Caroline-Queen Anne's — Contract No. C0-173-2-215; construction of two steel beam and concrete bridges, one over Norwich Creek and one over Tuckahoe Creek on the new Queen Anne-Hillsboro bypass; both of the bridges are to be supported on precast concrete pile; Norwich Creek Bridge is 3-33-foot spans, with 30-foot roadway and safety curb on each side; Tuckahoe Creek Bridge is 5-40-foot spans with 30-foot roadway and safety curb on each side; Empire Construction Co., 31 S. Calvert St., Baltimore; $154,096.

Caroline — Contract No. C0-190-2-250; construction of bridge across the approach road to the Laurel race track and on over the Patuxent River near Laurel bypass, also for grading and surfacing the approaches to Hunting Creek bridge at Chontank; Contee Sand and Gravel Co. of Laurel; $303,750.

Prince Georges — Contract No. P-522-1-515; grading, drainage and surfacing of relocated section of Queen's Chapel Road, a distance of 0.54 mi.; Wilmoth Paving Co., Washington, D. C.; $353,568.

Anne Arundel—Contract No. AA-392-1-358; grading, drainage and surfacing of dual highway along Friendship International Airport Rd., 0.582 mi.; Wilmoth Paving Co., 60 P St., SE. Washington, D. C.; $199,471.

Charles—Contract No. Ch-264-1-515; grading, drainage and surfacing of State Rt. No. 3, a distance of 5.923 mi.; T. Edgie Russell, Frederick; $360,858.

Anne Arundel — Contract No. AA-368-3-358; grading, drainage and surfacing of dual highway along proposed Washington-Baltimore Expressway, 1.535 mi.; Rea Construction Co., P. O. Box 2015, Charlotte, N. C.; $870,487.

MISSISSIPPI

BROOKHAVEN—Lincoln County Board of Supervisors let contract to Dickerson & Bowen, $143,594, for 6 mi. hard surfaced roads.

MISSOURI

JEFFERSON CITY — State Highway Commission let contracts for projects in following counties:

Warren—FI 236(6), 4.485 mi. GE and 24-ft. pavt.; Fred Weber Contracting Inc., St. Louis; $369,922.

Franklin—Rt. 66, 71-B, 4.494 mi. 20-foot asphaltic concrete pavt.; Bridges Paving Co., St. Louis; $104,810.

JEFFERSON CITY — State Highway Commission received low bids for projects in following counties:

Caldwell—Rt. 36, Sec. 12-A, 4.964 mi. widening with R.S. base and 20-foot asph. conc. resur.; Midwest PreCote Co., Kansas City; $195,850.

Caldwell—Rt. 36, Sec. 13-A, 4.880 mi. widening with R.S. base and 20-foot asph. conc. resur.; Midwest PreCote Co., Kansas City; $104,242.

NORTH CAROLINA

RALEIGH—State Highway Department let contracts for projects in following counties:

Bladen and Columbus — BS 3-7-27-14, etc.; Zeigler-Cline Construction Co., Fayetteville; $111,670; (5); Kiker & Yount, Inc., Reidsville, roadway, $102,430; W. F. Brinkley, Granite Quarry, structures, $198,039.

Forsyth and Stokes—F-111(10) and F-121 (4); W. E. Graham & Sons, Cleveland, $177,809.

Mecklinburg — 6.51 mi. grading and structures on U.S. 74; Kiker & Yount, Inc., Reidsville; $102,430.

Transylvania—Proj. 9920; Asheville Contracting Co., Asheville; $142,282.

Nash and Edgecombe—1.14 mi. of grading, soil-type base course, concrete paving and structures on U.S. 301; T. E. Brown, Charlotte, $124,381.

RALEIGH—State Highway Commission received low bids for projects in following counties:

Haywood—Grading, bituminous surfacing and structures on 4.085 mi. from point on Canton-Newfound Gap Rd.; Asheville Contracting Co., Asheville; $142,282.

BUNCOMBE COUNTY — Public Roads Administration, 1440 Columbia Pike, Arlington, Va., received low bid from Asheville Contracting Co., London Road, Asheville, $425,510, for Part "A," Project No. 201, Blue Ridge Parkway.

OKLAHOMA

OKLAHOMA CITY—State Highway Commission received low bid for project in following county:

Dewey—US 60, 5.402 mi. grading, drainage, stabilized asphalt base, bituminous surface; W. E. Steelman; $113,688.

SOUTH CAROLINA

COLUMBIA—City let contract to Cherokee, Inc., $288,342, for street improvements.

COLUMBIA — State Highway Department let contracts for projects in following counties:

Horry—S.C. Doc. 26,260 and 26,261; Hubbard Construction Co., Marion; $134,515.

Lexington—S.C. Doc. 32,271, 32,275 and 32,272; American Construction Co.; $125,295.

Pickens—3.5 mi. of bituminous hwy.; Sloan Construction Co.; $173,052; bridge on Hwy. 123 over Southern Railway; LaMotte Construction Co., Columbia; $107,882.

COLUMBIA — State Highway Department received low bids for projects in following counties:

Aiken—10.522 mi. Rd. 29 from U.S. 1; Hubbard Construction Co., Marion; $103,188.

Berkeley—9.334 mi. of Rds. 40 and 48; a spur on Rd. 48; Davis Moragne, 301 Gadsden, Columbia; $131,927.

Calhoun—4.201 mi. of Rds. 43 and 44; 4.873 mi. of Rds. 26 and 27; 7.026 mi. of Rt. 267, and 4.261 mi. of Rd. 92; E. H. Himes Construction Co., Inc., Greenwood; $162,798.

Florence-Williamsburg—3.063 mi. of Rd. 70; 7.450 mi. of Rd. 58; 1.541 mi. of Rd. 44; 0.330 mi. of Rd. 80, and 2.628 mi. of Rd. 34; Davis Moragne, Columbia; $191,383.

Lancaster—5.338 mi. of Rd. 23; 2.667 mi. of Rd. 42; 1.374 mi. of Rd. 54; Blankenship Bros., Charlotte; $148,319.

Lancaster—1.841 mi. of Rd. 47; 1.959 mi. of Rd. 76; 1.182 mi. of Rd. 37; 0.846 mi. of Rd. 57; 1.978 mi. of Rd. 67 and 56; 1.140 mi. of Rd. 70; 2.530 mi. of Rd. 71, and 6.291 mi. of Rds. 20 and 40; Hubbard Construction Co.; $238,326.

Oconee—7.198 mi. of Rd. 37; 1.515 mi. of Rd. 115, and 4.289 mi. of Rd. 21; B. L. Jones and Co., Winder, Ga.; $114,136.

Orangeburg-Dorchester — 2.826 mi. of Rds. 130 and 93; Currahee Construction Co., Inc., Toccoa, Ga.; $104,096.

TENNESSEE

NASHVILLE—State Highway Commission let contract to Foster & Creighton Co., American National Bank Bldg., $654,672, for rebuilding Chattanooga's Brainerd Road from Rosemont Ave. to east city limits.

MEMPHIS — State Highway Department, Nashville, received low bid from S & W Construction Co., Memphis, $636,676, for underpass and approaches at the Southern Railway crossing on Iowa extended between Walnut and East.

(Continued on page 48)

Southern Construction Projects

(Continued from page 48)

TEXAS

AUSTIN—State Highway Commission let contracts for projects in following counties:

Wharton—Hwy. FM 441, 6.429 mi.; Heldenfels Brothers, Rockport, $106,115;

Waller — Hwy. FM 362, 9.875 mi.; J. W. Perry, 501 Insurance Bldg., San Antonio, $111,360;

Fayette—Hwy. St. 71, 8.353 mi.; The Jarbet Company, Inc., 812 Insurance Bldg., San Antonio, $309,071;

Tarrant—Hwy. 121 & 183, 3.370 mi.; Uvalde Construction Co., P. O. Box 3027, Dallas, and J. B. Clardy Construction Co., 7024 Sylvania Sta., Ft. Worth, $621,698;

Coleman—Hwy. US 67, 10.453 mi.; H. L. Butler & Son, P. O. Box 7112, Dallas, $293,798;

Newton — Hwy. St. 63, 12.024 mi.; Olene Hanson, 4339 Pease Street, Houston, $322,461;

Smith—Hwy. No. St. 155, 6.527 mi.; Howard Brothers, Madisonville, and R. B. Butler, Inc., Box 471, Bryan, $102,509;

Smith and Henderson—Hwy. St. 155, 1.608 mi.; Campbell & Kay, P. O. Box 836, Tyler, $218,051;

Kerr, Edwards & Real — Hwy. No. US 83, 18.479 mi.; I. C. Cage, 6637 W. Commerce St., San Antonio, $484,745;

Childress and Hardeman — Hwy. US 287, 12.742 mi.; Cooper & Woodruff, 1203 Dallas National Bank Bldg., Dallas, $272,991;

Grayson—Hwy. US 75, 4.857 mi.; The Austin Road Co., P. O. Box 1599, Dallas, $454,964;

Newton—Hwy. St. 63, 0.260 mi.; Thomas & Ratliff, Rogers, and R. T. Farr, P. O. Box 747, Silsbee, $212,836.

Floyd—Hwy. FM 308 and FM 784, 26.026 mi.; Cooper & Woodruff, 1203 Dallas National Bank Bldg., $186,748;

Jasper—Hwy. FM 777, 8.894 mi.; L. W. Pelphrey Co., P. O. Box 1166, Gladewater, $189,164;

Cochran—Hwy FM 769 and FM 597, 33.321 mi.; J. R. Fanning, 1712 13th St., Lubbock, $235,303;

Marion—Hwy. FM 726 and FM 729, 13.858 mi.; Campbell & Kay, P. O. Box 836, Tyler, $110,539.

Jefferson—Project No. 28-7013, 368-4-6, Hwy. No. US 90 and St. 124; road work; Trotti and Thompson Co., P. O. Box 70; $115,362.

Jefferson—State 73 and farm to market No. 823, grading, west of Port Arthur Rd. to 1.4 mi. west of Lost Lake (State 73) and from Hwy. 73 to junction with west Port Arthur Rd. (F M 823); McWilliams Dredging Co., New Orleans, $739,313;

BEAUMONT — Jefferson County Commissioners let contract to Trotti and Thomson, Beaumont, $121,147, for culvert and bridge on Procter St. extension near Port Arthur.

CORPUS CHRISTI—City, Wesley F. Seale, Mayor, let contract to J. M. Dellinger, Inc., 2425 Leopard, $109,133, for paving of 19th St. from Agnes to Lipan; Lipan St., from Brownlee to 19th and Comanche St., from Coke to 19th.

DALLAS—City, Earl Goforth, Sec., let contract to the Austin Road Co., P. O. Box 1599, $130,830, for street improvements on Hampton Rd., from Clarendon Dr. to Davis St.

EL PASO — City received low bid from Western Construction, Inc., El Paso., $153,692, for superstructure and Southeast wingwall of the Campbell Street Bridge approaches to bridges on Campbell and West Main Sts.; Contract No. X; Vowell Construction Co., Upper Valley, El Paso, $95,586, for approaches to bridges at Santa Fe, El Paso, Oregon, Stanton & Kansas Sts.

HOUSTON—Harris County let contract to Holland Page, $140,679, for paving in Harris county.

HOUSTON—City let contract to Gulf Bitulithic Co., $114,128, for paving Fulton Street from Quitman to Irvington.

SAN ANTONIO — State Highway Department let contract for following projects in Bexar County:

Expressway from Fredericksburg Rd. to Culebra Ave., H. B. Zachry Co., $1,493,395;

Culebra Ave. to Comal St.; M. B. Killian & Co., $1,382,287;

4.6 mi. northwest of San Antonio to 1.2 mi. southeast of Helotes; M. B. Killian & Co., $178,520.

On San Saba and Pecos Sts.; H. B. Zachry Co., $319,869;

From Alamo Heights to Walzen Rd. on US Hwy. 81; H. B. Zachry Co., $452,429.

SHERMAN—State Highway Department receive low bid from Austin Road Co., Dallas, $454,964, for 4.875 mi. of Hwy. 75 improvement between Sherman and Iron Ore Creek; grading and drainage structures and a two-lane, 10-in. concrete pavement, 24 ft. wide.

VIRGINIA

FINCASTLE—Public Roads Administration received low bid from Abbott and Ritchie, 320 W. Cary, Richmond, $116,213, for Project No. H3-H4, two bridges, Blue Ridge Parkway, Botetourt county.

RICHMOND — State Highway Commission let contract for project in following county:

Nelson—Albert Brothers, Salem, $108,425, for new bridge on Route 29 across Rockfish River in Nelson county.

New Government Buildings

(Continued from page 40)

United States Court of Appeals, the chambers of the judges for that court and a library. Five district courtrooms of size similar to those on the second and third floors and a large special district court for trials in which there is great public interest will be on the sixth floor. Mechanical equipment and rooms for jurors required to stay overnight will be located on the seventh floor. In the basement will be main prisoners' holding cells, a cafeteria and garage for 70 cars.

Limestone Court Building

The new courts building will be faced on four sides with Indiana limestone, with granite below the first floor line. All windows will be extruded aluminum; spandrels between the windows, black serpentine stone. There will be no cornices or porticoes. The principal entrance will be on Constitution Avenue. There also will be entrances on John Marshall Place and on Third Street, the latter to have a marquee over the driveway.

Turner Construction Co., New York, is contractor for the Pan-American project. Its designers are Harrison, Hough, Livingston and Larson, successors to architects for the original building.

CONCRETE, BITUMINOUS SURFACING — KENTUCKY DEPARTMENT OF HIGHWAYS

Tabulation of bids opened by Kentucky for 2.044 miles of cement concrete pavement and bituminous surfacing on Pineville-Middlesboro-Cumberland Gap Road, from Stat. 543 00 to Stat. 649 00, Bell County, U 322 (7); SP 7-124.

Item	Quant. and Unit	Nally & Ballard, Inc. Bardstown, Ky.		Allen-Codell Co., Inc. Winchester, Ky.	
Clear. and Grubb.	27.96 Acres	$100.00	$2,796.00	$150.00	$4,194.00
Roadway Excav.	84,531 Cu. Yd.	1.13	95,520.03	1.10	92,984.10
Bor. Excav.	12,884 Cu. Yd.	.50	7,215.04	.90	11,595.60
Str. Exc., Uncl.	321 Cu. Yd.	4.00	1,284.00	6.00	1,926.00
Str. Exc., Common	1,340 Cu. Yd.	7.00	9,380.00	5.00	6,700.00
Str. Exc., Sol. Rock	50 Cu. Yd.	10.00	500.00	13.00	650.00
Remov. Conc. Pavt.	350 Sq. Yd.	1.00	350.00	1.50	525.00
Remov. Conc. Steps	5 Cu. Yd.	5.00	25.00	6.00	30.00
Remov. Conc. Sidewalk	50 Sq. Yd.	.50	25.00	.50	25.00
Remov. Conc. Foundation	40 Cu. Yd.	5.00	200.00	13.00	520.00
Remov. Conc. Curb	200 Lin. Ft.	1.00	200.00	.50	100.00
Remov. Conc. Catch Basin	2 Each	40.00	80.00	25.00	50.00
Rem. Stone Mas. Hdwll.	2 Each	10.00	20.00	5.00	10.00
Remov. Stone Mas.	45 Cu. Yd.	5.00	225.00	5.00	225.00
Remov. Pipe	320 Lin. Ft.	3.00	960.00	1.00	320.00
Remov. Guard Rail	100 Lin. Ft.	1.50	150.00	.50	50.00
Remov. Inlet Basin	2 Each	40.00	80.00	25.00	50.00
Manholes	2 Each	275.00	550.00	250.00	500.00
Cl. A Conc.	902.7 Cu. Yd.	47.50	42,878.25	48.00	43,329.60
Cl. B. Conc. Ret. Wall	90.5 Cu. Yd.	45.00	4,072.50	45.00	4,072.50
Cl. D Conc.	10.4 Cu. Yd.	125.00	1,300.00	200.00	2,080.00
Steel Rein.	102,880 Lbs.	.125	12,860.00	.12	12,345.60
Water	5,810 1000 G	.05	290.50	.20	1,162.00
Final Dress.	107 Stas.	30.00	3,210.00	40.00	4,280.00
Proj. Monuments	2 Each	25.00	50.00	35.00	70.00
Surf. Ditch 2 Sq. Ft. Area	200 Lin. Ft.	.10	20.00	.50	100.00
12" Inlet Basin	1 Each	150.00	150.00	200.00	200.00
15" Inlet Basin	4 Each	175.00	700.00	225.00	900.00
Remov. Conc. Mas.	5 Cu. Yd.	20.00	100.00	13.00	65.00
Overhaul	55,200 Yd. Sta.	.04	2,208.00	.05	2,760.00
Relay. Pipe	200 Lin. Ft.	3.00	600.00	1.00	200.00
Adj. Manhole to G.	3 Each	125.00	375.00	35.00	105.00
6" Conc. Entr. Pave.	25 Sq. Yd.	4.50	112.50	4.50	112.50
Temp. Pav. Cross Over	1 Each	450.00	450.00	250.00	250.00
4" Conc. Sidewalk	555 Sq. Yd.	3.50	1,942.50	3.00	1,665.00
Slope Protect.	400 Sq. Yd.	5.50	2,200.00	3.50	1,400.00
10" Bear. Piles @ 42"	434 Lin. Ft.	4.00	1,736.00	4.00	1,736.00
Driv. 10" Bear. Piles @ 42"	434 Lin. Ft.	4.00	1,736.00	4.50	1,953.00
Cl. B Bronze Plates	993.3 Lbs.	1.25	1,241.63	1.00	993.30
Rem. of 18" Tmb. Bdge. Cuc. Abut.	1 L. Sum	1,500.00	1,500.00	250.00	250.00
15" Entr. Pipe	250 Lin. Ft.	3.00	750.00	2.50	625.00
18" Entr. Pipe	250 Lin. Ft.	3.50	875.00	3.90	975.00
24" Entr. Pipe	200 Lin. Ft.	5.00	1,000.00	5.00	1,000.00
18" Cul. Pipe	810 Lin. Ft.	3.50	2,835.00	3.60	2,916.00
24" Culv. Pipe	255 Lin. Ft.	5.25	1,338.75	4.80	1,224.00
36" Culv. Pipe	54 Lin. Ft.	9.00	486.00	8.00	432.00
42" Culv. Pipe	48 Lin. Ft.	13.00	624.00	12.00	576.00
12" Sewer Pipe	81 Lin. Ft.	2.00	162.00	3.00	243.00
Alt. Types of Surfac. Cem. Conc. Pav.					
8" Uniform Cem. Conc. Pav.	30,546 Sq. Yd.				
Integral Curb	1,163 Lin. Ft.				
Approach Slab	228 Sq. Yd.				
Cr. Lime. for Entr.	50 Tons				
Or Bit. Surf. Cl. I					
Cr. Lime, Base	18,190 Tons	3.92	71,304.80	4.20	76,398.00
Ref. Tar RT-2 for Prime	7,885 Gals	.20	1,577.00	.20	1,577.00
Bit. Conc. Binder	2,440 Tons	8.50	20,740.00	8.75	21,350.00
Bit. Conc. Surf.	2,405 Tons	8.50	20,442.50	8.75	21,043.75
Curb and Gutter	1,163 Lin. Ft.	3.50	4,070.50	2.00	2,326.00
Cr. Lime. for Entrances	50 Tons	2.75	137.50	3.50	175.00
Total Bid: Cement Concrete Pavement Bituminous Surface Class I			(1)$325,636.00		(2)$331,344.95

$862,727 Bid Submitted for Savage Dam

HUNKIN Conkey Construction Co., and Shockner, Gordon & Hinman, of Blairsville, Pa., bid $862,727.50, the lowest of seventeen proposals for completion of the Savage River dam project near Oakland, in Allegany County, Maryland.

Second and third low bidders were C. H. Groves Co., Minneapolis, $948,920, and Oman Construction Co., Nashville, Tennessee, $1,041,235. Other bids ranged up to $1,982,000. The Government estimate was $1,676,043.

Unit prices submitted by the Hunkin-Conkey-Shockner-Gordon & Hinman combination, and the quantities involved:

Rock scaling of left abutment, 30,000 sq. ft. at $10; stripping for embankment, 37,000 cu. yd. at 40c; common excavation, 23,000 cu. yd. at 80c; excavation in area A, 100,000 cu. yd. at 45c; excavation in area B, 50,000 cu. yd. at 60c; excavation in area C, 50,000 cu. yd. at 60c; excavation in area D, 235,000 cu. yd. at 60c;

Also, excavation in area X, 200,000 cu. yd. at 50c; excavation in area Y, 400,000 cu. yd. at 58c; rock from sources other than required borrow excavation, 10,000 cu. yd. at $1.00; impervious fill in embankment, 299,000 cu. yd. at 19c; pervious fill in embankment, 419,000 cu. yd. at 19c; additional rolling (3 passes), 4,400,000 sq. ft. at 5c;

Also, rock fill in embankment and stream channel, 89,500 cu. yd. at 95c; rock spalls in embankment and parking area, 2,350 cu. yd. at $2.00; core or rotary drilling in rock or concrete for pressure grouting, 200 lin. ft. at $4.50; core or rotary drilling in earth for pressure grouting, $4.50;

Also, black steel pipe, 400 lb. at 75c; pressure grouting, 200 cu. ft. at $4.00; pneumatic concrete, 800 cu. ft. at $4.00; miscellaneous concrete, 10 cu. yd. at $70.00; gravel surfacing of road, 18,000 sq. yd. at $2.00; 18-in. corrugated metal pipe, 30 lin. ft. at $6.50; 24-in. corrugated metal pipe, 30 lin. ft. at $8.00.

The dam, according to the original plan, will create a storage reservoir of 6,500,000,000 gallons, or 20,000 acre-feet and was started about a decade ago by the Upper Potomac River Commission and the Maryland Works Projects Administration.

Length from the eastern terminus on Savage Mountain to the western end on Backbone Mountain was to be 1,050 feet. Height approximated 175 feet in the original plans. Distance between the upstream and downstream toes would be 930 feet. Elevation of the valley at the site is 1 320 feet.

The outlet tunnel, which was holed through in 1940 is 10 feet in diameter and was blasted through strata of rock such as sandstone, limestone and sandy shale, about 170 feet below Backbone Mountain.

Other bidders and their prices were: Frank Mashuda Co., $1,398,320; Carlo Bianchi & Co., $1,195 030; S. T. Brotemarkle Co., $1,529,325; C. J. Langenfelder & Son, Inc., $1,093,365; Latrobe Construction Co., $1,252 675; George M. Brewster & Son, Inc., $1,556,275;

Also E. J. Albrecht Co., $1,982,645; Blythe Brothers, Inc., and Ralph E. Mills Co., $1,409,475; Morrison-Knudsen Co., Inc., $1,472,118; S. J. Groves & Sons Co., $1,961,850; Elmhurst Contracting Co., $1,298,1123; Nello L. Teer Co., $1,096 230; Lipsett, Inc., $1,249,680; Keely Construction Co., $1,307,100.

The current proposals were opened in the Washington, D. C., office of the Corps of Engineers, headed by Col. Henry C. Wolf.

San Angelo Dam

(Continued from page 34)

slopes were then dressed to neat lines with bulldozers working at right angles to the axis of the dam or up and down the side slopes.

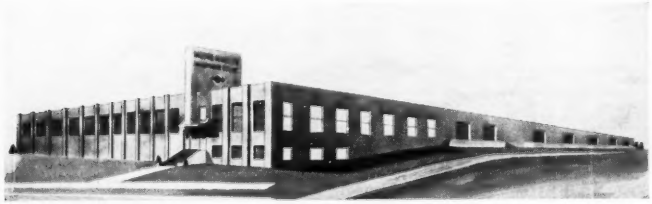
Mr. Norman points out that after completion of the dike and removal of the temporary ramps, an exceptionally uniform surface was obtained by dressing the entire side slopes with a cable drag pulled by two tractors, one operating on top of the fill and one at the toe of the slope.

The government has also entered into contracts with the Hardie-Tynes Manufacturing Co., of Birmingham, Ala., for service and emergency gates; the Warner Construction Co. for erection of the office buildings and with the Texas State Highway Commission for relocation of Highway Route 87.

When finished the San Angelo project will consist of an earthen dam 37,540 feet long and a maximum height of 128 feet. It will contain about 18,000,000 cubic yards of earth fill. The reservoir it will create will cover an area of 20 square miles.

Construction of the San Angelo project has uncovered various sites of ancient Indian life in the form of mounds, middens and other artifact. These discoveries were so important that the Smithsonian Institution at Washington made investigations.

The project, it is announced by Colonel Robinson, will be finished by July of 1951. A graduate of the Military Academy at West Point, he commanded the 5201st Engineer Construction Brigade during World War II and now directs a $50,000,000 civil construction program. His resident engineer on the San Angelo project is James R. Simpson, a graduate of the A. & M. College of his native Texas. He has directed both civil and military construction for the Corps of Engineers.



Moore-Handley to Open Soon at Nashville, Tennessee

Moore-Handley Hardware Co., Inc., of Birmingham, Ala., plans to open its new 117,000-square-foot warehouse and office at Nashville, Tenn., April 29. On Craighead Avenue, the building is of concrete construction with air-conditioned offices and a warehouse suitable for use of the most modern electric warehouse materials handling equipment.

Moore - Handley serves customers throughout Alabama, Georgia, Florida, Mississippi and Tennessee. The firm was organized in 1882 and now employs 815 workers, including 103 salesmen. Included in the firm's fleet are about 34 trucks and tractors with additional semi-trailers and vans, as well as three display buses carrying samples. These latter cover the company's entire territory in Alabama, Georgia, Florida, Mississippi and Tennessee.

Moore - Handley recently opened a branch at Mobile, where a 168,000-square-foot warehouse was remodeled to make it a modern plant. The project included a 600-foot railroad track, an overhead crane system for loading and unloading heavy material from railroad cars. The single floor plant, it was emphasized, permits installation of a flow system of materials handling, using electric fork trucks.

The company's Birmingham home operation covers 625,000 square feet of warehouse and offices in addition to 35 acres of industrial property available for the future. W. W. French, Jr., is president.

Missouri Pacific Program

(Continued from page 37)

more than $13,000,000 included no additional motive power, and freight or passenger cars, but the Missouri Pacific system lines have on order, and expect to have delivered during the year, 46 diesel locomotives of various types, costing $11,326,015 and adding 113,000 horsepower to the line's dieselization program; eleven more passenger cars costing $1,341,587; 1,000 70-ton hopper cars totaling $4,691,460. In addition, the company's own shops at De Soto, Mo., are scheduled to build 1,200 hopper cars and 1,000 gondola cars estimated to cost another $9,400,000, or a grand total of $26,759,062 in engine and car purchases previously authorized.

"Committing the Missouri Pacific Lines to the expenditure of almost $40,000,000 for roadway improvements and new rolling stock this year," said P. J. Neff, the company's chief executive officer in St. Louis, "should be conclusive evidence of our continued faith in the economic stability of the railroad industry and of our own lines in particular."

Southern Contracts Strong in January

(Continued from page 11)

natural resources, the large item being $725,000,000 for the Atomic Energy Commission, with $481,000,000 for flood control and $344,000,000 for development of water resources in the western states.

"Overbuilding" was the way the veterans' hospital program was described. Twenty-four such projects have been cancelled and capacity reductions are proposed for 14 others. The revised building program, according to Carl R. Gray, Jr., administrator of veterans' affairs, "will not result in a single service-connected veteran being denied immediate hospitalization."

In the budget were asked $100,000,000 a year for five years to permit cities to clear slums and prepare sites for urban redevelopment and loan authorizations of $25,000,000 next year to increase in subsequent years to total $1,000,000,000 in a five-year period. The President also asked revision of the financial structure of federal loan agencies to encourage substitution of private capital for federal money.

The National Association of Home Builders states that the 867,500 new houses built last year have done a great deal toward meeting the housing demand. The Bureau of Labor Statistics reports were described as on the conservative side and housing construction industry as regaining "its pre-war characteristic of peak production in the spring and summer months and a natural slackening with the approach of cold weather in many areas."

W. J. Goodwin, Jr., president of the Structural Clay Products Institute, stressed the increasing number of brickmason apprentices as a factor in relieving the skilled labor problem. He said cooperation between labor and management in brickmasonry was more favorable and that today's training programs would result in "more skilled building craftsmen for the construction of tomorrow's homes, schools, commercial and industrial structures."

Production of brick and tile during 1949 is promised at a pace equal to the record output of last year, for which the estimate was six billion brick. The supply of common and face brick, as well as of structural clay tile, is expected to meet demands in all parts of the country. Increased use of clay products is seen in public construction "due to the emphasis of county, state and federal building officials on economy."

Steelmaking capacity is now 96,000,000 tons per year, or greater than ever before in either war or peace, with further large expansion planned duing the next two years. Companies increased ingot capacity by 1,800,000 tons last year. Schedules call for addition of 2,200,000 tons in 1949 and 500,000 tons in 1950.

PRIVATE BUILDING

(Assembly, Commercial, Residential, Office)
January, 1949

	Contracts Awarded	Contracts to be Awarded	Contracts Awarded January 1948
Alabama	$ 1,055,000	$ 2,385,000	$ 2,081,000
Arkansas	961,000	1,320,000	125,000
Dist. of Col.	275,000	1,500,000	.....
Florida	14,669,000	10,097,000	6,446,000
Georgia	5,956,000	23,005,000	1,150,000
Kentucky	120,000	450,000	215,000
Louisiana	2,706,000	3,315,000	446,000
Maryland	3,983,000	6,340,000	4,137,000
Mississippi	590,000	685,000	554,000
Missouri	2,725,000	7,270,000	472,000
N. Carolina	3,462,000	1,991,000	1,187,000
Oklahoma	2,815,000	5,445,000	420,000
S. Carolina	1,751,000	3,100,000	773,000
Tennessee	2,009,000	3,608,000	1,618,000
Texas	28,854,000	33,091,000	10,839,000
Virginia	2,477,000	8,080,000	958,000
W. Virginia	295,000	355,000	1,000,000
TOTAL	$74,683,000	$112,037,000	$32,821,000

PUBLIC BUILDING

(City, County, Federal; Housing; Schools)
January, 1949

	Contracts Awarded	Contracts to be Awarded	Contracts Awarded January 1948
Alabama	$ 4,031,000	$ 3,945,000	$ 1,720,000
Arkansas	1,124,000	10,857,000	960,000
Dist. of Col.	691,000	1,510,000	3,189,000
Florida	4,580,000	11,237,000	2,456,000
Georgia	1,957,000	5,927,000	1,572,000
Kentucky	900,000	2,550,000	755,000
Louisiana	2,132,000	7,600,000	7,969,000
Maryland	1,821,000	109,755,000	1,264,000
Mississippi	3,879,000	8,687,000	2,744,000
Missouri	1,364,000	7,301,000	5,343,000
N. Carolina	7,018,000	6,284,000	2,388,000
Oklahoma	4,758,000	11,136,000	3,270,000
S. Carolina	2,285,000	870,000	253,000
Tennessee	4,118,000	44,424,000	413,000
Texas	10,442,000	55,761,000	23,852,000
Virginia	1,254,000	34,650,000	152,000
W. Virginia	.....	3,450,000	5,000,000
TOTAL	$52,354,000	$325,914,000	$63,300,000

ROADS, STREETS, BRIDGES

January, 1949

	Contracts Awarded	Contracts to be Awarded	Contracts Awarded January 1948
Alabama	$ 159,000	.....	$ 3,178,000
Arkansas	84,000	60,000	.....
Dist. of Col.	768,000	.....	3,624,000
Florida	1,406,000	.....	1,087,000
Georgia	5,000,000	503,000	2,604,000
Kentucky	1,456,000	11,405,000	776,000
Louisiana	1,789,000	2,790,000	7,779,000
Maryland	4,569,000	2,790,000	340,000
Mississippi	310,000	654,000	4,555,000
Missouri	1,945,000	20,910,000	.....
N. Carolina	2,307,000	2,430,000	1,912,000
Oklahoma	1,527,000	9,713,000	2,205,000
S. Carolina	3,082,000	1,770,000	296,000
Tennessee	7,995,000	2,060,000	19,000
Texas	16,195,000	7,990,000	2,364,000
Virginia	1,459,000	1,710,000	1,279,000
W. Virginia	.....	310,000	.....
TOTAL	$50,021,000	$65,140,000	$32,018,000

INDUSTRIAL

(Including Private Utilities)
January, 1949

	Contracts Awarded	Contracts to be Awarded	Contracts Awarded January 1948
Alabama	$ 125,000	$ 80,250,000	$ 971,000
Arkansas	75,000	16,615,000	200,000
Dist. of Col.	.....	.....	.....
Florida	963,000	485,000	683,000
Georgia	760,000	3,210,000	314,000
Kentucky	338,000	2,200,000	240,000
Louisiana	2,264,000	5,125,000	2,090,000
Maryland	2,476,000	2,847,000	2,791,000
Mississippi	153,000	190,000	980,000
Missouri	769,000	37,334,000	2,335,000
N. Carolina	18,881,000	1,630,000	1,402,000
Oklahoma	1,455,000	8,420,000	412,000
S. Carolina	1,090,000	5,275,000	979,000
Tennessee	1,785,000	111,310,000	615,000
Texas	18,162,000	75,634,000	11,359,000
Virginia	175,000	3,097,000	30,000
W. Virginia	.....	140,000	.....
TOTAL	$49,471,000	$353,762,000	$25,401,000

PUBLIC ENGINEERING

(Dams, Drainage, Waterworks, Sewers, Etc.)
January, 1949

	Contracts Awarded	Contracts to be Awarded	Contracts Awarded January 1948
Alabama	$ 445,000	$ 7,140,000	$ 1,902,000
Arkansas	929,000	23,995,000	406,000
Dist. of Col.	864,000	585,000	247,000
Florida	708,000	1,750,000	49,000
Georgia	1,592,000	2,430,000	266,000
Kentucky	490,000	2,786,000	.....
Louisiana	5,503,000	18,627,000	4,694,000
Maryland	1,112,000	890,000	1,002,000
Mississippi	2,387,000	3,250,000	439,000
Missouri	1,698,000	2,242,000	182,000
N. Carolina	1,505,000	2,583,000	1,124,000
Oklahoma	6,696,000	4,731,000	954,000
S. Carolina	1,175,000	9,146,000	663,000
Tennessee	566,000	72,284,000	.....
Texas	6,768,000	84,511,000	5,199,000
Virginia	559,000	2,285,000	3,424,000
W. Virginia	85,000	6,100,000	.....
TOTAL	$33,013,000	$245,335,000	$20,551,000

Kentucky Engages Private Engineers for Highways

Considerable engineering location work, a major step in highway building, is to be done under contract by private engineering firms in order to speed up preparations for the 1949 road building program, Highway Commissioner Garrett L. Withers said. Twelve different engineering concerns will be asked to consider projects and any other eligible firms may submit proposals.

"A shortage of engineers within the department and a greatly expanded road program has necessitated the engaging of outside help," the commissioner said. "Previously, most of the location work has been done by department engineers, but the department is not able under Kentucky's present salary limitations and the lack of a retirement plan such as is now provided by the majority of other State Highway Departments and by many firms in private industry, to secure and hold the services of sufficient men to handle our own necessary engineering work. This condition results in the State having to get a good deal of engineering work done by outside engineering firms which can pay their own engineers considerably more than the department scale.

"Few people understand the many steps necessary before a road project may be completed," Commissioner Withers stated. "First, preliminary surveys must be made as a basis for cost estimates. Next come preliminary location work and acquisition of rights-of-way. Often property owners block the original location lines and new surveys become necessary. This work is the advance stage wherein field engineers play the most important role.

"With from one to three hundred projects under consideration, and the need for special engineering parties on each, the present engineering personnel of the department is unable to cover enough territory. In addition, the new rural program will require a greatly expanded location effort."

Above—Two 8-ton Gallon rollers smoothing out a new bituminous concrete pavement near Columbia, Mo. Machine at far left is a Barber-Greene paving machine which is laying the coating.

EQUIPMENT AT WORK

By L. H. Houck

FALL CLEAN-UP FOR ROAD MACHINERY

Each fall the Missouri State Highway Department cleans and repaints its more than three thousand pieces of equipment. Each unit is first washed with a cleaning solution that removes grime and tar and then steam cleaned. New machinery is changed to SHD colors. Paint is applied by spray, as many as four guns running at a time. Air is supplied by the nearest air compressor, in this case a Schramm. Pictures show Schramm, International and Trojan equipment.

Below — Compressed air-operated agitators keep the special paint properly mixed. International mower being sprayed, also above.

Ceremonies Mark Chesapeake Span Start

(Continued from page 35)

$5.50; 18-in. reinforced concrete pipe, 1,040 lin. ft., $4.00; 24-in. reinforced concrete pipe, 64 lin. ft., $5.50; 42-in. reinforced concrete pipe, 588 lin. ft., $14.00; 48-in. reinforced concrete pipe, 168 lin. ft., $17.00; 22 by 13-in. corrugated metal pipe, 868 lin. ft., $4.25; Type J inlet, one $3.00 each; Type K inlets, 21, $250 each; end-wall concrete, 60 cu. yds., $100; plain concrete gutter, 165 cu. yds., $5.50.

Also Class A concrete, 260 cu. yds., $50; reinforcing steel, 37,500 lb., $1.25; damp-proofing, lump sum, $250; furnishing treated Class A timber piles, 2,880 lin. ft., $1.50; driving treated timber piles, 96, each $60; fabricated structural steel, 118,000 lbs., $.17; metal railing, 160 lin. ft., $6.00; bituminous surface course, 40 tons, $12.00; engineers' office, lump sum, $8,250.

West Approach—Clearing and grubbing, lump sum, $3,000; Class 1 excavation, 14,600 cu. yds., $.45; Class 2 excavation, 1,200 cu. yds., $1.50; muck excavation, 52,550 cu. yds., $.60; borrow excavation, 190,800 cu. yds., $.70; tamped fill, 1,050 cu. yds., $1.25; 18-in. reinforced concrete pipe, 310 lin. ft., $3.50; 24-in. reinforced concrete pipe, 240 lin. ft., $5.00; 36-in. reinforced concrete pipe, 180 lin. ft., $10.00; Class A concrete pipe endwalls, using Class A concrete regular cement, 25 cu. yds., $100.00; reinforcing steel bars, 1,600 lbs., $.15; engineers' office building and facilities, lump sum, $12,000; relocation of disposal field, lump sum, $800.

The bridge, as described by the Maryland State Roads Commission, will connect with the existing approach highway to the ferry terminal on State Route 404, about .83 miles northwest of the terminal, and run on a tangent to a point approximately 3,200 feet off the western shore where a 1°40' curve will join the main part of the structure which then continues almost due east to the Eastern Shore, crossing the main sailing course of the bay at right angles. At the eastern end it will connect with Route 404 about one mile east of Stevensonville.

Main items of material involved in construction of the project are 290,000 lineal feet of steel H and concrete piling, 135,000 cubic yards of concrete, 34,000 tons of structural shapes, plates, cable and other fabricated steel, and 5,500 tons of reinforcing steel.

From the Sandy Point, or westerly end, the bridge deck will be carried on a series of 60-foot I-beams for 1843.50 feet; 1318 feet of deck girder spans, 2850 feet of simple truss spans, and 1442 feet of deck cantilever truss construction to the crossing of the main channel, which will be crossed by a 1600-foot suspension bridge with 660-foot side anchor spans.

Continuing easterly from the main span will be an 4681-foot series of deck cantilever trusses to the secondary channel, where the through cantilever truss will consist of a main span 780 feet long and 471-foot anchor arms. Deck girder spans 2230.5 feet long, 2274 feet of I-beam spans and 1757.50 feet of filled causeway will complete the route to the eastern shore.

Pile bents will be used for the eastern and western approach sections. These will be of precast concrete or concrete protected steel H piles with reinforced concrete caps. All piers, except those supporting and furnishing the anchorages for the suspension bridge will be of concrete construction carried on steel H or tube piling.

Main and anchorage piers for the suspension bridge will be of cellular, concrete construction. Except for the anchorages, the lower parts of the piers will be prefabricated on ways or in drydocks and towed to position. The lower sections of the anchorage piers will be built in place on sand islands proposed as protection for the anchor piers and cable back stays. The piers will rest on confined sands of the bay bottom.

J. E. Greiner Co. of Baltimore are the consulting engineers for the project, collaborating with engineers of the Maryland State Roads Commission, who include Robert M. Reindollar, the chairman; William F. Childs, chief engineer; Walter C. Hopkins, deputy chief engineer, and Albert L. Grubb, bridge engineer.

"Where Liberty dwells, there is my country."—BENJAMIN FRANKLIN.

Lower Costs Forecast at A.S.C.E. Meeting

(Continued from page 30)

Hadden, consulting engineer and former chairman of the Indiana State Highway Commission, Indianapolis, "As a Public Servant," and D. C. Greer, Texas State Highway Engineer, Austin, Tex., "In the State Service."

Answering his own question: "Why Teach Highway Engineering?" Professor Petty declared:

"The highway engineering industry is already seriously handicapped by having far too many engineers on the payroll who are simply locating engineers only, structural design engineers only, testing and research engineers only, and construction or maintenance or traffic engineers only. Highway engineers who have a reasonable knowledge of and interest in the entire field of highways are few and far between. It is a mystery to me why so many engineering schools ignore the subject of highway engineering completely. Yet they will devote the equivalent time to other subjects which play a relatively minor part in our economy and offer only a small fraction of the opportunities for employment that are wide open in the field of highway engineering."

Professor Petty decried "the fact that far too many among the general public and the teaching profession, not directly connected with the highway industry, are confident in their own minds that they are curbstone experts on the subject of highway engineering." He pointed out that in his own institution, "if we add up the actual hours in lecture, recitation and drafting, plus examination periods, it totals just 96 hours or, on the basis of an eight-hour day, the equivalent of 12 days."

Water Pollution Control

Control and abatement of water pollution was called "a number-one national problem." James W. Follin, assistant administrator of the Federal Works Agency, detailed federal aid plans for construction of sewage installation works estimated to cost between three and five billion dollars. He emphasized that enactment of Public Law Number 845 "doesn't mean that the Federal Government has decided to shoulder the basic responsibility," but that "the law clearly declares it to be the policy of Congress to recognize, preserve and protect the primary responsibilities and rights of the states in controlling water pollution. However, the act proposes to support and aid technical research, and to provide Federal technical services to state and interstate agencies and to industries, and also financial aid to state and interstate agencies and to municipalities in shaping and executing their stream pollution abatement programs."

Describing the procedures for obtaining loans and grants, Mr. Follin called the legislation which, he said, makes partners of the Surgeon General of the Public Health Service and the Federal Works Administration, "unique," and expressed the hope that it would set a pattern for other Federal programs.

Sanitary Engineer Need Acute

None of America's Armed Services "offer any incentive to draw qualified personnel into the services or to build a competent sanitary organization in any of them," despite the fact that defense against atomic and bacterial warfare makes the need for training sanitary engineers especially acute, according to Prof. H. G. Baity, Chapel Hill, N. C., of the University of North Carolina's sanitary engineering department.

"Substantial progress has been made in recent months," he said, "toward a clearer definition and response in regard to the role of the sanitary engineer in problems associated with nuclear fission operations. The Atomic Energy Commission, under whose purview fall all matters relating to such operations, has now found it desirable to acquaint the profession with several aspects of these problems as related to environmental sanitation, reversing a policy wherein it first appeared that only the most limited participation of the profession in the development of safeguards would be permitted.

"It was argued aggressively and persuasively by leaders in the profession that protection of man and his environment against the hazards of radioactivity fell into areas of responsibility that could be serviced by the sanitary engineer. Therefore, it followed that the sanitary engineer should be made acquainted with the

problems of nuclear fission operations, especially in the disposal of wastes to the atmosphere, to the soil, and to surface waterways.

"As to bacterial warfare, there has been no intimation yet—at least publicly—of the kind or scope of probable protective measures. It is not unlikely, however, that conventional tests for the detection of contaminants would have to be re-examined in order to provide more positive means for detection of pathogenic organisms during periods of possible attack. And since the means adopted for transmission of some diseases could be far different from those that operate under natural conditions, entirely new techniques for sanitary control might be called into application."

Asserting that the expansion authorized in the Army, Navy and Air Forces "will certainly result in an increased need for sanitary engineering services," Professor Baity declared that "conditions of employment and service will be such that they will appeal only to lower grade men," continuing, "Temporary assignments to active duty, plus the fact that the work is likely to be under the supervision of unqualified officers, preclude the chance for satisfactory and profitable service. The postwar reorganization of the national defense represented in large part the resentment of the combat officers against the staff organization that existed during the war. No doubt the pendulum has gone too far. Until it returns, and the necessity for efficient utilization of technological personnel is again recognized, none of the Armed Services offers any attraction to the sanitary engineer."

Small Town Security Cited

If a town has less than 50,000 population and 10 miles of open country between it and an industrial concentration of five square miles, it "probably will not be strategically feasible" for an enemy to attack it—either with the atom bomb or the more conventional airborne missiles, said Dario G. Barozzi, assistant director of industrial dispersion, National Security Resources Board, Washington, D. C., in an address before the city planning division.

Mr. Barozzi emphasized that reasonable security can be achieved within existing regional frameworks, and, industry-wise, dispersion "must be such that it can be woven into our private enterprise system with minimum difficulty and be economically feasible." Population-wise, he said, dispersion "must be thoroughly consistent with efforts toward better standards of living and working." While suggesting that federal policy "might take the form of providing technical and possibly financial assistance" to state, regional and local planning commissions, Mr. Barozzi stressed the point that the Security Board's planning for dispersion "involves no mass exodus from our larger metropolitan areas" and that it "can hardly be construed as an effort to stampede American industry and the American people into a hysterical repudiation of our free and easy way of life."

Dispersion Called Insurance

Calling dispersion "life and property insurance in the atomic age," Mr. Barozzi said: "Were the premium for security to mean the abandonment of our urban and industrial civilization for caves and subterranean dwellings, the protection would not be worth the price." He pointed out that, even before the atom bomb, industry had started a swing toward smaller communities and decentralization for economic reasons. He cited a National Industrial Conference Board Report to the effect that smaller cities and towns of 10,000 to 100,000 population were most popular for plants established from 1940 to 1947.

"Subsequent to 1940," he declared, "the percentage of plants established in cities of 100,000 or over dropped from 47 per cent to 34.3 per cent. At the same time, since 1940, the percentage of plants established in cities of 100,000 or less has risen from 53 per cent to 66 per cent, with about 60 per cent of the population living in urban areas which occupy less than 3 per cent of our total land area. This is a good measure of our vulnerability," he observed, "because these population concentrations are also the concentrations of industry, transportation, business manage-

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Lower Costs Forecast at A. S. C. E. Meeting

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ment and governmental administration."

Two or more classes of air travel, with rates "scaled to the chances of arriving on time at the desired port of destination," were suggested as a "partial answer" to the problem of providing "reliability of service fundamental in the advance of aviation," by C. Earl Morrow, chief planning engineer and field director, Regional Plan Association, Inc., New York.

Air Schedule Reliability Urged

Citing an estimate that air lines lost $22,000,000 in cancelled flights in 1947 and asserting that "the harm does not stop there, as people will get out of the habit of flying or never acquire it if air schedules don't become more reliable," Mr. Morrow estimated instrument weather prevails in the New York district "about 20 per cent of the time." He added:

"Class B schedules would put the passenger down at the desired port if the weather permits. Otherwise, he might find himself landing at Westchester Airport instead of LaGuardia; at Morristown instead of Teterboro; Hadley instead of Newark, or McArthur instead of New York International. At least he will know what to count on and may be willing to take a sporting chance to save a few dollars. It is possible that general weather conditions might have to be taken into account or else in a long stretch of fair weather, Class B travel might be too popular."

Thomas M. Sullivan, engineer of airports of the Port of New York Authority, said most terminal buildings "at practically every airport in the world" were too small one year after they were put into operation.

"It behooves us to learn a lesson and plan the buildings for the maximum aircraft capacity that the runway configuration will permit," Mr. Sullivan declared, centering his paper around a hypothetical illustration of the inter-relation between rules and design aimed at meeting needs of the growing number of airline passengers and the "number of aircraft that electronic engineers feel may be possible to land and take off on a dual runway in any one peak hour, namely, 120 movements per peak hour."

Stage Development Asked

He advocated stage development in which only that portion of terminals are built which are required for airport traffic demand, through "integrating economic facts and technological assumptions with recognized terminal design data." Pointing out that growth of commercial transportation, increased use of faster and larger aircraft, and the need to satisfy larger passenger demands have overcrowded present terminals, Mr. Sullivan said:

"Our thinking in connection with terminal construction has changed radically. Whereas, in our development of airports in the past the terminal buildings were hastily planned, we now comprehend the true value of this facility in relation to the development of the entire airport. If properly designed, the terminal will provide not only maximum service to passengers and airlines, but will also provide a large part of the airport's income through the medium of concessions located in the terminal building."

Neighborhood Plans

Families whose space requirements change over the years as their numbers grow and diminish won't have to move from one vicinity to another and break ties of friendship under a plan of "neighborhoods with a variety of types of houses at varied rental levels" envisioned by Louis B. Wetmore, executive director, Providence Redevelopment Agency.

"The requirements of an American family change rapidly," Mr. Wetmore said. "A family of two starts with minimum space requirements. For 10 or 15 years the home expands; it then contracts for a like period until it again has to meet the original requirements for a family of two. Segregation of apartments in one section of the

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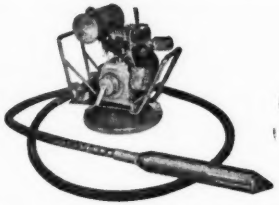

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Thor PORTABLE POWER TOOLS

Lower Costs Forecast at A.S.C.E. Meeting

(Continued from page 56)

city makes it necessary for a family as it grows or contracts to move about and break its ties with a neighborhood and friends of years standing. This could be obviated by providing a number of different types of housing within the neighborhood so that the family could meet its changing housing needs without uprooting its social life.

"The variety of housing types should be accompanied by a variation in rental values; otherwise the young, growing family, hard-pressed financially, might not find housing which it can afford in the same area with parents and older friends. A segregation by income levels is as unsatisfactory as a segregation by housing types. This does not mean, of course, a mixing of one-family houses, valued at $25,000 with apartment structures renting for $50 a month. It does mean that within an area nearly a mile long, and with a population of 5,000, there is room for apartment developments in one section, group housing in another, and single family housing in still a third. Moreover, some land by its geographic location or because of subsurface conditions is better suited to apartments or group housing than to a single family development."

Harbors and Channels

Harbor and channel maintenance, which cost American taxpayers one-third as much in the last seven years as was spent on this work in the preceding century, offers a challenge to the country's civil engineers to "save substantial sums by effecting improvements in techniques," in the opinion of Joseph M. Caldwell, chief of the laboratory section, Engineering and Research Branch, of the War Department's Beach Erosion Board, Washington, D. C.

Placing the cost of maintenance at 48 million dollars per year for each of the last seven years, he said "the commercial activity of the harbors of a maritime nation is generally a fairly reliable index of the economic health of the nation. Any natural phenomena which serve to restrict the normal development of the harbors of a nation also tend to restrain its economic advance. Sedimentation is probably the dominant natural force tending to restrict the development, expansion, and maintenance of harbors."

He called harbors the works of man in artificially increasing depths of water over that normally existing and depicted the battle engineers have been waging against the tendency of natural forces to restore the normally-existing depths. He classified harbors into four categories—river-channel, fall-line, tide-water, and shoreline, and discussed shoaling tendencies and techniques applied on each.

Discussing the magnitude of the sedimentation problem and the need for maintaining access channels, he said of the approximately one-thousand public navigation channels and public harbors of the country: "Maintenance work has entailed the removal of an average of 185 million cubic yards each year for the past seven years. The magnitude of such quantities of material is difficult to grasp; so it might help to picture the quantity dredged as being sufficient to cover Manhattan Island (22.24 square miles) each year with a layer of sand and muck about 2½ feet deep."

Sewer Federal Aid

Federal aid for the more than $3,000,000,000 worth of war-postponed sewage treatment works and other installations which states and communities need in order to clean up the nation's waters was called "insurance against hasty, ill-advised construction" by General Philip B. Fleming, Washington, D. C., Administrator, Federal Works Agency.

"More than 9,100 towns with over six million people living in them need complete sewerage systems. In nearly 10,000 additional communities, where almost 80 million people live, the sewerage systems need improvement. I think all of us would agree that towns of more than 5,000 population need sewers—yet we actually have 81 which now lack sewers. Eight states—California, Illinois, Michigan, Missouri, New Jersey, New York, Ohio and Pennsylvania—each need more than $100,000,000 worth of sewerage works. New York State, which requires something over a billion dollars, heads the list."

Palmer and Baker, Tunnel Experts

(Continued from page 33)

trestle to the Texas shore adjacent to the Port Bolivar Light.

Proposals have already been taken for the Galveston project. Merritt-Chapman and Scott Corp. was the low bidder at $11,845,000. Other bids and expenses including those of Brown and Root at $1,977,000 for the trestle, of Howard P. Foley Co. at $489,000 for the electrical work and of Westinghouse Electric Co., Sturtevant Division, at $87,000 for fan equipment, would raise the cost to the $17,000,000 figure.

The project will be three and two-tenths miles long. One mile will be the tunnel section, the balance to be the trestle and extensions to existing highways. Cost of the project exceeded the available funds and steps are being taken toward additional financing by Galveston County. The Texas State Highway Department is making a contribution understood to approximate the amount now being lost each year in operation of ferries along the line of the proposed tunnel.

New Orleans Project

Palmer and Baker are also engineers for the St. Claude Avenue tunnel proposed at New Orleans and the two tunnels authorized for construction at Fort Lauderdale, Fla. Designed to solve a difficult traffic situation complicated by a bridge, railroad tracks and a canal lock, the New Orleans project will accommodate four lanes of traffic in addition to having a pedestrian walkway and a utility duct.

Costs are now estimated at $8,500,000, an amount to be financed by the City of New Orleans, the State of Louisiana and five other interested public agencies. As planned, it would be of box section design with an 82 by 400-foot cross section, this to be floated into place. Adequate provisions are made in the design to protect the tunnel from waters of the Mississippi River, which rises substantially above the surrounding residential area.

Fort Lauderdale Tunnel

Palmer and Baker engineers investigated the possibilities of relieving traffic conditions at Fort Lauderdale by construction of three shallow water tunnels. They have recommended against one location and that the municipality build a tunnel at Los Olas Boulevard at New River Sound and that the local authorities join with the State of Florida in a subaqueous span of the same stream at its intersection with U. S. Highway No. 1. This latter would be a free thoroughfare built by county, state and federal funds.

Louisiana Road Program

(Continued from page 5)

ordinary maintenance of Louisiana's 14,547 miles of state-maintained highways cost $12,827,000 during the year, approximately the same amount expended in 1947.

State aid to parishes, consisting of the repair and reconditioning of about 3600 miles of school bus routes, mail routes and farm-to-market roads outside the state-maintained system, totalled $1,109,000.

Major construction expenditures during 1948 included more than $6,400,000 for 92 miles of concrete highways, and approximately the same amount for 290 miles of black-topping. Aggregate surfacing of 68 miles of roads cost slightly more than $1,000,000 and bridges and structures totalled about $1,900,000. Right-of-way costs were approximately $800,000 and grading amounted to $680,000.

Arundel-Dixon Push Narrows Dam

(Continued from page 29)

is an automatic electric weighing batcher controlled from a central weighing and control board within which there is mounted an automatic recorder.

The plant is equipped with two 4-cubic-yard Davis Model 112S tilting type mixers. The mixers discharge into batch hoppers from which the concrete is discharged into 8-cubic-yard, 2-compartment Gar-Bro concrete buckets, with air operated dump gates. The buckets are carried to the cableway area by a transfer car mounted on a standard gauge track powered by a Baldwin-Westinghouse locomotive.

Handling of Concrete Aggregates

Concrete aggregates stored at the mixing plant area are stockpiled over a reinforced concrete reclaiming tunnel. For each size aggregate there is mounted over the tunnel a structural steel cooling bin shaped as an inverted truncated cone where cold water is introduced to cool the aggregates. Each bin is equipped with a slide gate operated by air through which the aggregates are dropped to a conveying belt system to be carried to the batching bins.

Handling of Cement

Cement is delivered to the railhead six miles from the project in hopper bottom cement cars where it is unloaded into an elevated steel hopper by means of a screw conveyor. Cement is hauled to the job site where it is dumped into a hopper and conveyed to the cement silo by means of horizontal screw conveyor and a bucket elevator. The cement silo has a capacity of approximately 5,000 barrels. The same conveyor system is used for conveying cement from the silo to the cement batching bin by diverting the cement discharge at the top of the bucket elevaor.

Refrigeration System

A refrigeration system to provide cold water for mixing, cooling of the aggregate and for the production of slush ice is installed adjacent to the mixing plant. The system is a direct expansion ammonia system, compressed air for which is furnished by two 10 by 10 Worthington vertical compressors powered by 100-horsepower electric motors. Slush ice required in the concrete mix during the summer to provide the necessary reduction in temperature is produced by two Pac-Ice machines, each having a capacity of approximately 2,400 pounds per hour.

Production of Concrete Aggregates

Aggregates for the project are produced under subcontract by J. G. Shotwell Co. Both fine and coarse aggregate are obtained from bars in the Little Missouri River about 9 miles below the dam. Four sizes of coarse aggregate are used in the mass concrete, *i.e.*, No. 4 to ¾-inch, ¾-inch to 1½-inch, 1½-inch to 3-inch and 3-inch to 6-inch. The crushing, screening and washing plant is set up at the pit. The aggregate is stockpiled at the pit and hauled to the mixing plant as required. The hauling is performed under subcontract by Keith Williams, Vicksburg, Miss. A fleet of ten White trucks with 12-cubic-yard capacity Winch-Lift trailers are used for hauling the aggregate.

Compressed Air

Compressed air for the entire dam construction area is furnished from the central compressor station. Equipment in this station consists of two Ingersoll-Rand, Imperial Type 10 stationary compressors, electrically operated, having a capacity of approximately 1,000 C.F.M. each. Air is piped from this station to the various construction areas. Areas not accessible to pipe lines are supplied by two portable compressors, one 500 C.F.M. and one 365 C.F.M.

Excavation Equipment

The excavating equipment consists of one 2½-cubic-yard Manitowoc dragline and one 1½-cubic-yard Northwest shovel with 11 cubic yard end dump Euclid trucks for hauling units.

Miscellaneous Equipment

Additional miscellaneous construction equipment required consists of a Browning truck crane used for unloading heavy machinery and equipment at the railhead and storage yards, a motor patrol for maintaining haul roads, miscellaneous wagon drills, vibrators, and carpenter shop equipment.

Dilworth Heads Elphinstone Organization, Baltimore

Robert H. Dilworth, Sr., is announced as the new president of D. C. Elphinstone, Inc., construction equipment firm of 115 South Calvert Street, Baltimore, succeeding Oliver D. Shepard, whose death has been felt in both the Elphinstone organization and the construction equipment world.

The reorganized staff, as announced by President Dilworth, includes J. Walter Jackson, secretary-treasurer; William A. Beery, vice president; Walter J. Burgan, vice president; Robert H. Dilworth, Jr., vice president; John E. Cross, Jr., sales manager, and John G. Brothers, assistant treasurer.

Veteran Projects Cancelled

Twenty-four proposed hospital projects have been cancelled and fourteen others reduced in size, according to an announcement by Carl R. Gray, Jr., Administrator of Veterans' Affairs, who said that a study of the needs for hospital beds has shown estimates to be considerably larger than necessary.

Thirteen general medical hospitals proposed for Harrisburg, Pa., Charlotte, N. C., Greenville, S. C., Tallahassee, Fla., Thomasville, Ga., Grand Rapids, Mich., Decatur, Ill., Duluth, Minn., Mound Bayou, Miss., Tupelo, Miss., Klamath Falls, Ore., San Diego, Calif. and Columbia, S. C., with a total of 2,750 beds have been cancelled.

Seven neuropsychiatric projects eliminated, total 6,171 beds, were to be located at Salisbury, N. C., Gainesville, Fla., Memphis, Tenn., Toledo, Ohio, Norman, Okla., El Paso and Houston, Texas. Two cancelled tuberculosis hospitals were proposed for Americus, Ga., Detroit, Mich., and a rehabilitation project at New York.

Reduced in size are projects at Syracuse, N. Y., Philadelphia, Pa., Pittsburgh, Pa., Washington, D. C., Atlanta, Ga., Cincinnati, and Cleveland, Ohio, Louisville, Ky., Chicago, Ill., Kansas City, Mo., Oklahoma City, Okla., and St. Louis, Mo.

Equipment Dealers See Good Year

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indicated, in his opinion, that the average set aside for advertising was too low. He recommended a minimum budget of one per cent of the preceding year's gross. Subsequent discussions showed lively interest in advertising and sales promotion.

Other panel leaders were Rufus G. Poole of Washington, who led the discussion on the legal aspects of association work, and Harry E. Shaw of Philadelphia, who described a current research and statistical project. Frank G. Knight, A.E.D. secretary, outlined the services presently available at the association's Chicago headquarters, 360 North Michigan Avenue. Moderator for the session was R. S. Patten of Bellwood, Ill.

Ralph K. Stiles, of Austin-Western Co., presided at the manufacturer-distributor panel discussion. Subjects were selected on the basis of nationwide general interest and included raw material supply, advertising, finance, sales training and cooperation and inventory. Throughout the session were evidences of both manufacturers and distributors placing emphasis on sales aids, sales training and methods to meet competition and maintain volume in a buyers' market.

Representing the manufacturers were: Howard Meeker, of J. D. Adams Manufacturing Co., Indianapolis; W. E. Miles, of Oliver Corp., Cleveland, and Julian Steelman, of Koehring Company, Milwaukee. Distributor panel members included Henry Hale, of Milton-Hale Machinery Co., Inc., Albany; Jack How, of Edward R. Bacon Co., San Francisco, and Morton R. Hunter, of Hunter Tractor and Machinery Co., Milwaukee.

Most popular among the panels was the one dealing with manufacturer-distributor relations and "Take Home Pay For the Boss." The former dealt with a selected group of problems occurring most frequently in manufacturer-distributor contacts. Subjects discussed at the latter included finance and insurance, credits, collections and tax problems, salesmen's compensation and inspection of new equipment. Panel leaders were G. W. Van Keppel, of Kansas City, moderator; Eldon M. Farnum, of St. Louis; Ray J. Fin, of Cincinnati; S. John Oechsle, of Philadelphia; Walter W. Kershaw, of Salt Lake City, and Frank G. Knight, of Chicago.

Among the entertainment highlights were an "Early Bird's Breakfast" in honor of Mr. Garlinghouse, sponsored by A.E.D. members from Southern California; a president's cocktail party, an annual banquet, an installation luncheon for new officers and directors, a luncheon in honor of new members, and a closing luncheon sponsored by manufacturers. Gene Flack, of Sunshine Biscuits, Inc., and William H. Upson, noted humorist, were featured speakers.

Tribute was paid by R. L. Arnold, vice president from Salt Lake City, to those who have actively promoted the Association's growth to the present record roll of 1,024 members from the United States and Canada. He declared it would be difficult to match the progress but expressed confidence that it would be done by working together under sound leadership.

Office Buildings May Have Metal Walls

Two large midtown Manhattan office buildings now being designed may have metal walls, according to Robert L. Davison who spoke recently to an architectural group at Pratt Institute. Architects for these buildings have made alternate wall designs to test economies expected to result from the change made early this year in the New York City Building Code. This change permits walls of non-masonry construction in Class I fireproof buildings in New York City.

In charge of the New York Office of Howard T. Fisher & Associates, Architects and Engineers, of Chicago, Mr. Davison pointed out the great advantage in space saving made possible by this code revision. The Empire State Building, Radio City, and many other buildings built in recent years have used metal spandrels and mullions, but until this year it has been necessary to back this metal with the same thickness of masonry as would be required if metal were not used. The code no longer requires masonry walls in fireproof buildings, nor specifies minimum wall thickness.

"Story of a House"

Weldwood plywood and Mengel flush doors are featured in the color motion picture "Story of a House" which is being distributed nationally through department stores starting February 1. The film is the account of Mr. and Mrs. Pete Watson, a young couple who set out to build a modern comfortable home in today's market. Starting with a choice of a lot—and financing, the 30-minute film, in which Broadway actors and actresses play the leading roles, includes a trip to the local lumber dealer.

Texas Tunnel Sections

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formed into huge half-circle supporting elements. Transported to the platens, the diaphragms set in position over the inner plates and welded into place, forming a half-circular-shaped sub-assembly. Thirty of these are fabricated on the ground and put together to become one complete section.

The bottom sub-assemblies are placed on the ways, with the top sub-assemblies placed later. All are then welded. The last parts to go into place are the two large bulkheads—one for each end, outer shell plates being installed before these are put into place. A standard sequence is used, with allowance for shrinkage to make a finished overall length of 375 feet. Most of the welding is of the straight, single pass method. There is some intermittent welding, but all is in the same category as that used in ship hull work.

Small steel bars run the entire interior circumference longitudinally from one end to the other. These are for reinforcement of the inner lining of concrete poured at the tunnel location. This steel webb is formed by automatic stud-weld-

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Texas Tunnel Sections

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ing and is believed to be the first time used on such construction. Temporary provisions are made for counteracting the strains of launching.

Regular shipways are used to float the sections. However, the sections ride the ways on five 35-foot sleds instead of the continuous ways used to send ships on to their first taste of water. The burn-off plate is replaced by two trigger shores, these being located by the second sled from the stern end. Special shoring is installed inside the center of the section.

Heavy angle stiffeners are welded atop the structure amidship to protect the center during the time the stern hits the water and the forward end remains on the ways. Three A-frames are erected at the fore poppet or crash sled to give the the needed support when the sections pivot. Handling the launching procedure required 15 men.

The shoring is removed at the outfitting pier and the ballast poured. Interior concrete and parts of the ballast concrete between shelves are placed upon arrival at Pasadena. The remaining concrete is placed by the tremie method and the trench backfilled to original grade. This grade, which will involve a maximum of five feet above the top of the tunnel, is to be 45 feet below the surface at normal tide.

Before the bulkheads are removed from the sections after being sunk in permanent positions, the four parts will be joined together by means of a series of saddles, pilot pins, locking pins, links and rachets which draw the steel rims to equal pressure against a gasket enclosed in a steel jacket. Steel channels are welded on the inside of each two tubes so joined. All steel members in the joints are welded in place, to remain at a perpendicular position when the sections are placed at a six per cent grade.

At the south end of the tunnel will be the four-story ventilation building, two floors above the waterline and two below to the tube. This will be a structural steel frame encased in concrete and brick and natural stone. Floors and roof will be reinforced concrete. Traffic will pass through concrete arch sections and open ramps at the north and south ends, where connections will be made from Shaver Street and Rederal Road.

Koppers to Build Big Gates for Flood Control Dam

Twenty-six gates, each weighing 35 tons and sheathed in stainless steel, will be built by the Metal Products division of Koppers Co., Inc., for the new Conemaugh River dam in Western Pennsylvania, it has been announced by Walter F. Perkins, vice president and general manager of the Koppers division.

The contract to Koppers was awarded by the U. S. Army Engineers, and provides for delivery in 360 days. Cost of the gates will be $1,237,000. The giant metal portals, which will hold back waters of the Conemaugh River in flood season, will have the stainless steel sheathing at all places where they touch water. This is necessary, Army engineers point out, because of the high degree of acidity of the water, much of which comes from mines of the area.

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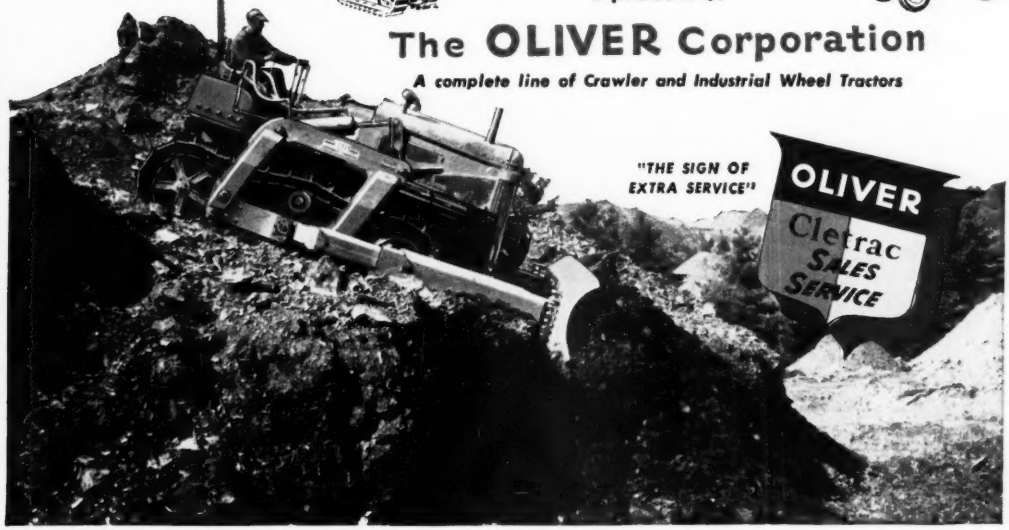

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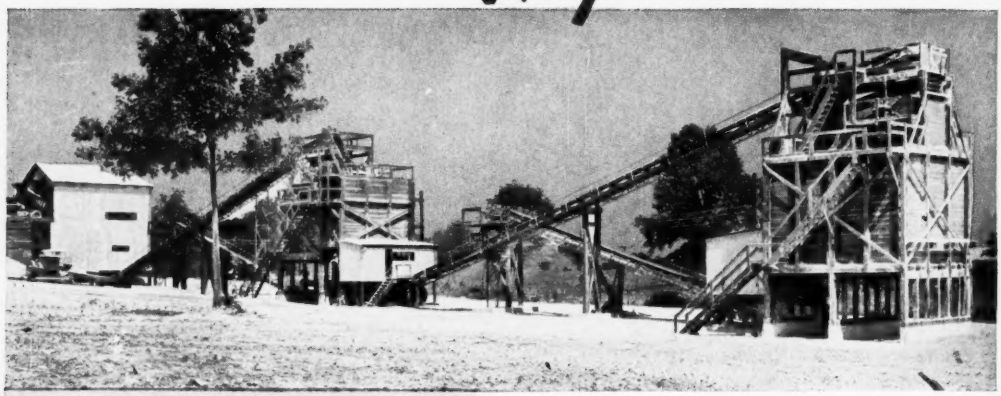

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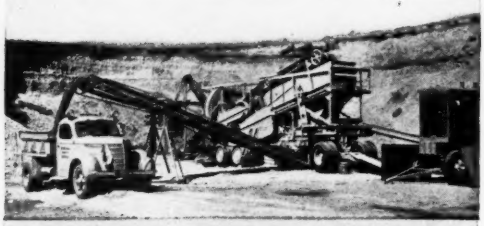

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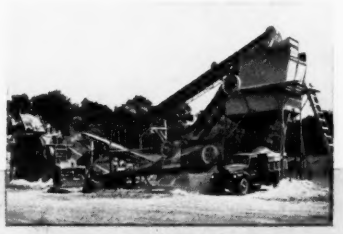

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